THE IRON TRADE REVIEW

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Record Breaking Business Continues in New Year

Very Large Car Order Placed by Harriman Lines—Pig Iron Production Broken by December and Last Year

The first week of the new year was characterized by the continuance of the favorable conditions which made the old year one of great prosperity. While buying is not as active as it was at times during the past year, it is more active than it was at other times during 1912, and underlying conditions continue sound. Eastern Pennsylvania mills which during the last half of the year sold large tonnages at premium prices are finding no difficulty in making new contracts at similar quotations.

Pig Iron Production

The past year was the greatest in the history of the American iron trade in production of pig iron and December had the largest output of any month. The total production of coke and anthracite pig iron for 1912 was 29,325,513 tons, a gain of 6,126,912 tons over 1911, and 2,480,199 tons more than the previous record made in 1910. The production for December was 2,777,292 tons, or 93,647 tons more than the previous record made in October of last year. December also broke the record for daily average production at 89,590 tons, or 1,605 tons over November, which month broke a two-year record. The production last month was at the rate of 33,000,000 tons annually. The number of furnaces in blast on Dec. 31 was 291, compared with 215 active on the last day of 1911.

Pig Iron

While sales of no large tonnages are reported, there is a steady buying of small tonnages in many parts of the country, indicating that consumption is at a very heavy rate. Many foundries find it necessary to come into the market for additional tonnages for delivery during the first half of the year. In southern iron, more interest is manifested and prospects are encouraging, but the market is dull and prices are somewhat uncertain. There is strong pressure for delivery, especially in eastern territory. Small lots of foundry iron are being sold in the Pittsburgh district at $18, valley.

Railroad Buying

The Harriman lines have placed orders for 12,500 freight cars of various types with western builders and have also contracted for 190 locomotives. The Canadian Northern railway has ordered 1,850 box cars, 700 flat, 300 ballast, 100 refrigerators, 150 stock and 76 passenger cars and 130 locomotives. The New York Central, the Toledo & Ohio Central and the Big Four railroads have each ordered 1,000 gondolas. The Rock Island has purchased 500 gondolas from the Standard Steel Car Co., and is now in the market for 1,000 box cars, 200 refrigerator and 50 cabooses. The Michigan Central will build 400 box cars in its own shops. The Cambria Steel Co. has taken an order for 1,120 steel gondolas for the Baltimore & Ohio. The Mexican National railway has bought 7,000 tons of rails from the Maryland Steel Co. The Carnegie Steel Co., in 1912, broke all previous records in the rail and billet bureau, where specifications against contracts involved more than 4,000,000 tons, an increase of 800,000 tons over the record year.

Structural Material

Delivery of structural material is gradually being extended and in the Chicago territory it is difficult to obtain promises of delivery prior to 1914. In other parts of the central west, the tonnage available for delivery before October is gradually diminishing. Some eastern mills are able, however, to give fairly prompt delivery at premium prices. Contracts for the two large buildings to be built by the Field estate at Chicago, each requiring about 7,000 tons of steel, have been awarded, one going to the American Bridge Co., and the other to the Morava Construction Co. The Calumet bridge, Chicago, calling for 3,300 tons, has been awarded to the Pennsylvania Steel Co. The proposed Cristobal-Bilboa transmission line, to be built along the Panama canal, will involve about 22,000 tons of structural steel. The bridge to be erected by the Pennsylvania railroad, at Sheridan, Pa., calls for 6,600 tons of steel. Owing to the difficulty in obtaining deliveries, new projects are not developing as rapidly as they would under more favorable conditions.

Coke

Many foundries finding that their contracts will not meet their full requirements are contracting for additional tonnages. There has been some reduction of output, owing to the holidays, and some furnaces are finding it difficult to obtain sufficient fuel to keep in operation. Prompt furnace coke is selling at from $4 to $4.15.

PITTSBURGH

Heavy Tonnages of Shapes Pending

Office of THE IRON TRADE REVIEW,
2148-49 Oliver Bldg., Jan. 7.

Despite the fact that new demand has fallen off slightly, there is no indication of any let-up in conditions. Specifications against contracts for all lines of finished iron and steel products are as heavy as they have been at any period during the last two months, and some of the leading consumers already are beginning to open negotiations for first quarter requirements in 1914. The unusually stable condition of the market, undoubtedly, is responsible for transactions that extend so far into the future.

More than usual interest is taken in inquiries for structural material, including about 22,000 tons for the proposed Cristobal-Balboa Transmission Line, to be built in connection with the Panama canal project, and 6,600 tons of fabricated steel for a bridge, to be erected by the Pennsylvania Lines West.

The rail and billet bureau of the sales department of the Carnegie Steel Co. shattered all previous records in 1912, specifications against contracts for all products handled by this department, involving more than 4,000,000 tons. Mills, as a general rule, broke records in all departments, the Cambria Steel Co., for instance, having exceeded all previous records by 35 per cent.

The Columbia Steel & Shafting Co., on Wednesday, sent out notices of an advance of $2 in the price of shafting, and it is probable that other manufacturers will adopt the new discounts.

Pig Iron.—The pig iron market at the beginning of the year is rather quiet, although there has been some heavy buying since our last regular report of Dec. 26, including the large purchase of the Youngstown Sheet & Tube Co., mentioned in the statistical number, Jan. 2. Within the past fortnight, one of the local foundry interests has closed for 2,000 tons of foundry and 2,000 tons of charcoal iron at $17.50, valley, and $25, Birmingham, respectively, for shipment the first half of the year. A local steel foundry company has purchased several thousand tons of basic this week at $17.25, Pittsburgh, according to advice from the consumer. This iron will be shipped the first quarter.

W. P. Snyder & Co., who have been compiling monthly pig iron averages since 1903, advise that December Bessemer and basic average prices were $17.2962 and $16.449, valley, respectively. Figures are based on sales of 1,000 tons or more. Figures for the year are as follows:

1912.

	Bessemer.	Basic.
January	$14.078	$12.372
February	14.00	12.25
March	14.0536	12.76
April	14.25	12.981
May	14.2345	13.00
June	14.25	13.209
July	14.25	13.48
August	14.534	14.00
September	15.962	15.134
October	17.00	16.184
November	17.172	16.192
December	17.2962	16.449
Average	15.09	14.00

Yearly averages from weekly reports of THE IRON TRADE REVIEW show Bessemer at $15.04 and basic at $13.97, valley, being 5 cents and 3 cents, respectively, below the yearly average prices maintained by the Snyder company. A comparison of monthly averages through the year shows broader ranges. We quote all grades of pig iron for first half shipment as follows:

(First Half.)

Bessemer, valley	$17.25
Bessemer, Pittsburgh	18.15
Basic, valley	16.50
Basic, Pittsburgh	17.40
No. 2 foundry, valley	17.50
No. 2 foundry, Pittsburgh	18.40
Malleable, valley	17.25 to 17.50
Malleable, Pittsburgh	18.15 to 18.40
Gray forge, valley	16.00 to 16.50
Gray forge, Pittsburgh	16.90 to 17.40

Ferro-Alloys.—Agents are uniformly quoting 80 per cent ferro-manganese at $65, seaboard, for forward delivery and the $70, seaboard, quotation is becoming more general for first half shipment. No large transactions are reported, although small lots of prompt material have been sold at $70, seaboard, and slightly above. Fifty per cent ferro-silicon continues to be quoted at $75, Pittsburgh, for either prompt or forward delivery.

We quote 80 per cent ferro-manganese at $73 to $75, Baltimore, for prompt delivery and $65 to $70 for forward shipment. The freight rate from Baltimore to Pittsburgh is $1.95 per ton.

Fifty per cent ferro-silicon is quoted at $75, Pittsburgh, for prompt and forward delivery; 12 to 13 per cent, $25 to $26, 11 to 12 per cent, $24 to $25; 10 to 11 per cent, $23 to $24; 9 to 10 per cent, $22 to $23, f. o. b. Globe, Jisco and Ashland furnaces. The freight rate to Pittsburgh is $1.90. The foreign grades are held at $1 or more a ton over domestic prices.

On ferro-titanium we quote 8 cents per pound for carload lots; 10 cents per pound for 2,000 pound lots and over, and 12½ cents per pound in lots up to 2,000 pounds.

Plates.—The most important question with manufacturers of steel plate is that of deliveries. New demand has fallen off slightly, but pressure for material is just as heavy as it has been at any time during the last few months and shipments are badly deferred. The Cambria Steel Co., Johnstown, Pa., has taken an order for 1,120 steel gondolas for the Baltimore & Ohio railroad and it is reported that the New York Central Lines have distributed orders for 2,000 cars between the Ralston Steel Car Co. and the American Car & Foundry Co. Several large inquiries for cars are pending. Prices follow:

Standard steel plates ¼ inch thick, 6¼ to 100 inches, 1.45c to 1.60c for forward shipment and 1.65c to 1.90c for prompt shipment. For extras, see card of Sept. 1, 1909.

Sheets. — Demand for sheets has been so heavy that all of the mills are well booked up for first half shipment and some interests are unable to sell additional tonnages for that delivery. Because of the inability to roll additional material during the first half, some of the independent mills have advanced quotations $2 a ton and are now quoting No. 10 blue annealed products at $1.75, No. 28 gage black sheets at $2.35 and No. 28 gage galvanized sheets at $3.50, for forward delivery.

On material for prompt delivery, a few of the mills are obtaining $1 and $2 a ton above maximum quotations for forward shipment. The scarcity of raw material has made it impossible for any of the mills to operate at maximum capacity and, as a result, several manufacturers have been forced to close down mills for several days. Figures showing production are not yet available, although it is conservatively estimated that the 1912 production surpassed that of any other year in the history of the trade.

We now quote blue annealed sheets at a range from $1.65 to $1.75 for No. 10 gage, No. 28 gage black at a spread from $2.25 to $2.35, and No. 28 gage galvanized sheets at a range from $3.40 to $3.50 for forward delivery. Revised quotations follow:

Flat Sheets.

Black Sheets.—Nos. 10-12 gage, $1.90 to $2.00 per 100 pounds; Nos. 13-14 gage, $1.95 to

$2.05; Nos. 15-16 gage, $2.00 to $2.10; Nos. 17-21 gage, $2.05 to $2.15; Nos. 22-24 gage, $2.10 to $2.20; Nos. 25-26 gage, $2.15 to $2.25; No. 27 gage, $2.20 to $2.30; No. 28 gage, $2.25 to $2.35; No. 29 gage, $2.30 to $2.40; No. 30 gage, $2.40 to $2.50.

Tin mill sizes, Nos. 15-16 gage, $2.00 to $2.10 per 100 pounds; Nos. 17-21 gage, $2.05 to $2.15; Nos. 22-24 gage, $2.10 to $2.20; Nos. 25-27 gage, $2.15 to $2.25; No. 28 gage, $2.20 to $2.30; Nos. 29-30 gage, $2.25 to $2.35; Nos. 30½-31 gage, $2.30 to $2.40; No. 32 gage, $2.35 to $2.45.

Blue Annealed.—Nos. 3-8, $1.60 to $1.70 per 100 pounds; Nos. 9-10, $1.65 to $1.75; Nos. 11-12, $1.70 to $1.80; Nos. 13-14, $1.75 to $1.85; Nos. 15-16, $1.85 to $1.95.

Galvanized.

Nos. 10-11 gage, $2.40 to $2.50 per 100 pounds; Nos. 12-14 gage, $2.50 to $2.60; Nos. 15-16 gage, $2.65 to $2.75; Nos. 17-21 gage, $2.80 to $2.90; Nos. 22-24 gage, $2.95 to $3.05; Nos. 25-26 gage, $3.10 to $3.20; No. 27 gage, $3.25 to $3.35; No. 28 gage, $3.40 to $3.50; No. 29 gage, $3.55 to $3.65; No. 30 gage, $3.70 to $3.80.

Roofing Sheets

Net extras on all gages per 100 pounds.

Corrugated 2-inch, 2½-inch, 3-inch and 5-inch corrugation, 5c; 2 V crimped without sticks, 5c; corrugated 1¼-inch corrugation, 10c; 3 V crimped without sticks, 10c; pressed standing seam with cleats, 15c; plain roll roofing with or without cleats, 15c.

Painted Roofing.

12 to 18 gage, inc., 5c; 19 to 24 gage, inc., 10c; 25 to 28 gage inc., 15c.

Tin Plate.—Heaviest consumers of tin and terne plate covered first half requirements before the end of the year, and the market has been quiet the last couple of weeks. Unusually heavy tonnages are being shipped to all parts of this country and Canada. Tin plate continues to be quoted at $3.60 for base size boxes.

Coke tin plate, 100-pound basis, 14 x 20, $3.60, f. o. b. mill, Pittsburgh district.

Rails and Track Material.—All previous records were broken in 1912 by the rail and billet bureau of the sales department of the Carnegie Steel Co. Specifications against contracts handled by that department involved more than 4,000,000 tons of all products, including rails, billets and other semi-finished steel products. Previous to last year, the banner year was 1911, when specifications involved about 3,200,000 tons of products handled by the bureau. Figures of 1912 exceed those of the previous year by about 800,000 tons.

Although leading railroads have covered requirements, demand continues rather heavy and traction line companies are beginning to figure 1913 needs. Standard spikes are being held at 1.90c as a minimum price. Rails are quoted as follows, with the base price of open-hearth steel sections at 1.34c per pound at the mill:

Fifty-pound and heavier, 1.25c per pound; carloads and less than 500 tons, 1.34c per pound; light rails on base weight of 40 to 45 pounds, 1.25c, the schedule on the other weights being irregular and subject to negotiations; angle bars for standard sections, 1.50c, Pittsburgh; track bolts, 2.40c to 2.50c, base, Pittsburgh.

Railroad Spikes.

4½, 5 and 5½ and 9-16	1.90c to 2.00c
3, 3½, 4, 4½ and 5 x ½	.10
3½, 4 and 4½ x 7-16	.20
3, 3½, 4 and 4½ x ½	.30
2½ x ½	.40
2½, 3 and 3½ x 5-16	.60
2 x 5-16	.80

Billets and Sheet Bars.—Sales of semi-finished steel products have been closed rather quietly the last couple of weeks, although no definite information is available regarding any of the transactions. Tonnages have been sold at the prices carried by THE IRON TRADE REVIEW, it is advised by reliable sources. One of the most important consumers reports that he has been unable to obtain material at less than $28 for Bessemer billets. We advance quotations 50 cents a ton, although some claim that it would be difficult to obtain products at these figures.

Bessemer 4 x 4 billets with 0.25 carbon and less are quoted at $28.00, with the usual extra for size and analysis, and open-hearth rolling billets, $28.50. Bessemer sheet and tin bars are quoted at $28.50 and open-hearth sheet bars are quoted $29.00, f. o. b. Pittsburgh and Youngstown, with full freight to destination added. Forging billets are quoted at $34.00 to $36.00, Pittsburgh.

Hoops and Bands.—The Carnegie Steel Co., on Jan. 2, put into effect a revised classification of extras on steel hoops, showing slight advances on smaller sizes and a regrouping of sizes. The new card takes the place of one that became effective April 2, 1909. Demand continues fairly heavy and specifying has been liberal.

Hoops in carload lots, 1.60c to 1.70c, Pittsburgh, in less than carload lots, 1.65c to 1.75c; bands, 1.40c to 1.45c, base, with net extras, as per standard steel.

Merchant Bars.—Although new orders have fallen off slightly, manufacturers advise that a healthy demand continues to be enjoyed. Several makers of steel bars report that they could not meet demand for 1913 delivery, if they were able to increase production 100 per cent. Several interests have sold steel bars through the second half of this year and will be out of the market the remainder of the year.

Leading interests and most of the independent companies continue to sell steel bars at 1.40c, although some tonnage is being sold $1 a ton above that figure. It is understood that bars for prompt material have been sold as high as 1.90c and 2c. Bar iron makers continue to offer products at a range from 1.70c to 1.80c, although a few interests are declining to sell at less than 1.75c.

The Columbia Steel & Shafting Co., on Jan. 8, advanced shafting $2 a ton, and is now quoting 58 per cent off for carload lots and 53 per cent off for less than carloads. The last previous advance in shafting was Sept. 26, 1912, when the 62 per cent and 57 per cent discounts were withdrawn. Other makers of shafting will adopt the new discounts, it is advised.

Automobile, agricultural, nut, bolt and rivet, and shafting interests continue to figure prominently in the buying of iron and steel bars. We quote:

Common iron bars, 1.70c to 1.80c, Pittsburgh; Bessemer and open-hearth steel bars, 1.40c to 1.45c; plow and cultivator, 1.40c to 1.45c; channels, angles, zees, tees, under 3 inch, 1.50c to 1.55c, all f. o. b. mill. The following differentials are maintained on steel: Less than 2,000 pounds and not less than 1,000 pounds of a size, 0.15 advance, less than 1,000 pounds of a size, 0.35. Cold rolled and ground shafting, 60 and 58 per cent off in carloads and 53 per cent in less than carloads delivered in base territory.

Muck Bar.—It is understood that a couple of 500-ton lots of muck bar have been offered at $32, Pittsburgh, although no recent sales have been made so far as can be learned. We continue to quote muck bar nominally at $32, Pittsburgh.

Bolts, Nuts and Rivets.—New discounts on nuts and bolts and the advanced price of rivets announced several weeks ago have been established. Demand continues to be rather heavy and shipments are deferred two and three months. Manufacturers are enjoying fairly good prices, and indications for the future are bright. We quote rivets, nuts and bolts as follows:

Rivets

Button head structural rivets, 2.20c, cone head boiler rivets, 2.30c. Small rivets 75, 10 and 10 off.

Bolt and Nut Discounts

Carriage bolts, ¾ x 6 inches, smaller and shorter, rolled threads, 75 and 10; cut threads 75 and 5; larger and longer, 70 and 2½.

Machine bolts with hot pressed nuts, ¾ x 4 inches, smaller and shorter, rolled 75, 10, and 5; cut, 75 and 10; larger and longer, 70 and 7½.

Gimlet and cone point lag or coach screws, 80 and 10.

Hot pressed square, blank or tapped nuts, $5.70 off list; hot pressed hexagon blank or tapped, $6.30.

Cold pressed C. & T. square, blank or tapped, $5.70 off; hexagon, blank or tapped, ¾-inch and larger, $6.60 off; ½ inch and smaller, $7.20 off.

Structural Shapes.—Considerable interest is taken in the proposed Cristobal-Balboa Transmission Line to be built along the Panama canal, extending from one end of the canal zone to the other, a distance of about 35 miles. Bridges and track spans will involve 22,000 tons of structural steel, including plates, channels, angles and bars.

Interest also is taken in the new Ohio double track connecting bridge to be built by the Pennsylvania railroad, at Sheridan, Pa. There will be 11 171-foot spans and 6,600 tons of

steel are involved. The McClintic-Marshall Construction Co. has taken 800 tons of deck plate girders for the St. Louis & San Francisco railroad and 630 tons for an extension to the erecting shops of the Marion Steam Shovel Co., Marion, Ind. The American Bridge Co. has taken 800 tons for new buildings to be built by the Aluminum Co. of America, at Knoxville, Tenn., and the Cambria Steel Co., 1,614 tons of steel channels for the Illinois Central railroad. Demand has fallen off slightly, but pressure for deliveries is just as heavy as it has been the last couple of months. We quote as follows:

Standard structural shapes, 1.45c to 1.60c for forward shipment. For extras see card of Sept. 1, 1909.

Iron and Steel Pipe. — The new standard of weights and list prices of iron and steel pipe mentioned in detail in the Dec. 12 issue of THE IRON TRADE REVIEW went into effect Jan. 1, and discounts, as applied to the new list already have been established, it is advised by iron and steel pipe makers. No complaint has been heard because of the fact that merchant weight steel pipe no longer is being manufactured. In fact, general satisfaction is being expressed on all sides, as a result of the National Tube Co.'s initial step to improve the quality of its products. Manufacturers of wrought iron pipe adopted the new standards before the end of the year, although no changes were made in discounts.

An inquiry for 180 miles of 12-inch pipe for the Hope Natural Gas Co., for West Virginia shipment, has not been closed. It is probable, however, that this transaction will be consummated shortly. An independent mill has taken an order for 30 miles of line pipe, from 4 to 10-inch, for southwestern shipment. Discounts to jobbers, subject to the usual preferential discounts to the large buyer, are as follows:

Iron and Steel Pipe Basing Prices.

IRON.

⅛ inch	66	47	..	..
¼ inch	70	57	..	..
⅜ to 2½ inch	73	62	..	..
2 inch	..	..	69	59
2½ to 6 inch	..	..	71	62
7 to 12 inch	..	..	69	56

Extra Strong Plain Ends, Card Weight.

⅛ inch	64	53	..	..
¼ inch	68	61	..	..
⅜ to 1½ inch	72	63	..	..
2 and 2½ inch	73	64	..	..
2 inch	..	..	67	59
2½ to 4 inch	..	..	71	62
4½ to 6 inch	..	..	70	61
7 to 8 inch	..	..	64	54
9 to 12 inch	..	..	59	48

Double Extra Strong Plain Ends, Card Weight.

¼ inch	58	50	..	..
⅜ to 1½ inch	61	53	..	..
2 and 2½ inch	63	55	..	..
2 inch	..	..	56	50
2½ to 4 inch	..	..	61	55
4½ to 6 inch	..	..	60	54
7 and 8 inch	..	..	53	43

Plugged and reamed pipe is furnished at 2 points higher price, either butt or lap weld.

The above discounts are for full weight pipe, subject to a variation of 5 per cent, merchant pipe, when specified, being furnished up to 6 inches at one point higher discount (lower price).

Boiler Tubes.—Makers of both iron and steel boiler tubes have adopted the new classification given in full in the Dec. 26 issue of THE IRON TRADE REVIEW. Iron boiler tube makers announced the adoption of this list immediately after Jan. 1, at which time new discount cards, showing a regrouping of sizes and slight advances in prices, were issued. We offer new discounts on iron and steel boiler tubes below:

IRON AND STEEL BOILER TUBES BASING PRICES

(To Jobbers.)

	Steel.	Iron.
1¼ and 2 inch	61	48
2¼ inch	58	44
2½ and 2¾ inch	64	53
3 and 3¼ inch	69	55
3½ to 4½ inch	71	58
5 and 6 inch	64	..
7 to 13 inch	61	..

To destination east of Mississippi river will be sold at delivered discount for carloads lowered by 2 points, for lengths 22 feet and under; longer lengths, f. o. b. Pittsburgh. Usual extras to jobbers and boiler manufacturers.

Wire.—The market for wire products has been rather quiet the last two weeks. Heaviest consumers covered needs just previous to the recent advance in prices, although there is, however, every indication that no difficulty will be experienced in establishing the new base. Wire nails are being uniformly quoted at $1.75, Pittsburgh, plain wire at $1.55. Quotations follow:

Wire nails, jobbers' carload lots, $1.75, retailers' carload lots, $1.80; cut nails (western makers), jobbers' lots, $1.70; painted barb wire, jobbers' carload lots, $1.75; retailers' carload lots, $1.80, with 40c for galvanizing; plain wire to jobbers in carloads, $1.55; and to dealers, in carloads, $1.60; polished staples, $1.75; galvanized staples, $2.10.

Wire Rods.—No sales of wire rods have been made for some time and many believe that the $30 quotation has become nominal. In the absence of transactions, however, we continue to quote that figure for both open hearth and Bessemer wire rods.

Coke.—Since the last regular weekly market report, prompt furnace coke has developed considerable strength, and a week ago was being sold at $4.25, at the ovens. Despite the Christmas holidays, and the observance of foreign holidays the early part of this week, there has not been what could be termed a scarcity of coke. Prompt furnace coke the early part of this week was selling at $4, and slightly above, at the ovens.

A consumer with mills in Ohio, on Monday, closed for 1,000 tons at $4, ovens, and several sales were made the following day at that figure. Contract coke is being held at $3.50, ovens, for first half shipment, although it is understood that several sales have been made slightly below that figure.

The Connellsville *Courier* says production of coke in 1912 was 20,032,275; our estimate was 20,058,941. For the week ending Dec. 28, production was 359,005, a decrease of 53,113 tons compared with the week before. Shipments decreased 259,000 cars. Production by quarters in 1912 from *Courier* reports was: First quarter, 4,909,709 tons; second quarter, 5,110,281 tons; third quarter, 4,809,053 tons; fourth quarter, 5,203,232 tons.

We quote the market as follows:

Connellsville furnace	$4.00 to 4.15
Connellsville furnace contract	3.25 to 3.50
Connellsville foundry	4.50 to 4.75
Connellsville foundry contract	4.00 to 4.25

Old Material.—There is practically no change in the market for iron and steel scrap. Heavy melting steel continues to sell around $15, although some good quality stock has been sold 25 cents above that figure. Malleable, stove plate, No. 1 cast and No. 1 busheling have reflected slight strength and machine shop turnings and bundled sheet scrap show weakness. The Pennsylvania railroad is asking bids on material to be shipped from eastern cities. Revised quotations follow:

Heavy melting scrap	$15.00 to 15.25
Rerolling rails	16.50 to 17.00
Malleable	14.00 to 14.50
Agricultural malleable	13.50 to 13.75
Bundled sheet scrap	13.00 to 13.25
Iron axles	26.00 to 27.00
Old iron rails	16.75 to 17.25
Stove plate	11.50 to 12.00
No. 1 wrought scrap	15.25 to 15.50
Old car wheels	16.25 to 16.50
Low phosphorus	18.00 to 18.50
Machine shop turnings	10.50 to 10.75
No. 1 busheling	14.25 to 14.50
Country mixed	11.00 to 11.25
Cast borings	10.25 to 10.50
No. 1 cast scrap	14.50 to 14.75

Cambria Makes New Record

The Cambria Steel Co., Johnstown, Pa., broke all previous records for the production of finished iron and steel products in 1912. Although tonnages are not announced, it is officially stated that last year's record exceeded that of any previous year by about 35 per cent, and it is understood that more than 1,000,000 tons of finished products were produced.

District sales managers of the company met at Johnstown Tuesday and Wednesday of this week to attend the usual semi-annual meeting. Among those who attended the conference were: L. B. Morris, New York City; H. W. Hays, Boston; E. D. Rogers, Cleveland; J. L. Adams, Cincinnati; Clifford J. Ellis, Chicago; W. S. Ottinger, Philadelphia; J. E. McClain, Pittsburgh; H. P. Hubbard, St. Louis, and F. E. Allen, Buffalo.

CHICAGO

Record Breaking of Last Year Continues

Office of THE IRON TRADE REVIEW,
1328 Monadnock Blk., Jan. 7.

There has been very gratifying evidence during the past week that the present prosperity will continue throughout the coming year. Mills in this territory entertain no fears of being unable to operate at capacity during 1913 and, on the contrary, would welcome a let-up in the present flood of business. The market for bar iron is exhibiting conditions almost parallel with those of other finished lines, one leading producer being unable to promise delivery on new business in less than six months. Specifications during the last week of the year were very heavy, some western mills receiving a total larger than during any like time in the past six months. Car builders are in part responsible for the existing conditions, as they have been following a policy of covering for plates and shapes on each order as it was received, and such specifications run into the last quarter. Although a few consumers asked for delayed deliveries while inventories were being taken, there was practically no let-up in this market during the holidays and both specifications and new business are continuing at the rate established in December.

Pig Iron.—Although the market is comparatively quiet, there is some inquiry for prompt shipment iron and some sales have been reported. One seller of southern iron in this market reports total sales for the past week of 2,500 tons for prompt shipment, including one lot of 2,000 tons and one of 350 tons. There is considerable interest in inquiries for ferrosilicon, one for 200 tons being reported. The Bettendorf Axle Co., previously mentioned as inquiring for 250 tons of this material, has recently closed a contract at current quotations. It is understood that a St. Louis car builder is negotiating for a round tonnage of pig iron and inquiries for small lots for prompt shipment from melters in this territory are noted.

Southern iron seems to be firm on a basis of $14, Birmingham, for early delivery and $14.50 for first half. No sales at the former figure have been noted, and while it is possible that second quarter iron could be bought for $14.50, Birmingham, some producers are quoting $15. A lack of orders for that delivery prevents accurate quotations. Northern iron is still firm on a basis of $18, local furnaces, and no change is noted over conditions maintaining before the holidays. Tentative inquiries for second half delivery are still reported.

The following prices represent the market for Chicago delivery except northern foundry and malleable Bessemer, which are quoted f. o. b. local furnaces.

	First quarter.	First half.
Lake Superior charcoal	$18.75	$18.75
Northern foundry No. 2	18.00	18.00
Southern foundry No. 2	18.35	18.85
South'n Silveries, 5 per cent sil.	.....	19.85
Jackson co. silv'r's 8 per cent.	21.90	22.40
Malleable Bessemer	18.00	18.00
Alabama basic	.....	18.85

Merchant Bars.—The market for bar iron is very active and prices are very strong at from 1.57½c to 1.62½c. Conditions in this market are rivaling those in steel, one prominent Chicago producer reporting specifications that run into July. On this basis, the earliest delivery that can be promised on new business is in six months. Hard steel bars are firm at current quotations and while the supply of raw material is somewhat better, mills are still operating on single turn. There has been no change in quotations on soft steel bars and specifications continue to be received almost at the rate established during December.

We quote, f. o. b. Chicago, as follows:

Bar iron, 1.57½c to 1.62½c hard steel bars, rerolled, 1.65c to 1.75c, soft steel bars, bands and small shapes, 1.63c; hoops, 1.63c; smooth finished machinery steel, 1 inch and larger, 1.78c; shafting 60 per cent off list for carload lots, 55 per cent off for less than carloads.

On iron and steel from local stock we quote as follows:

Bar iron, 1.95c per pound base; soft steel bars, 1.95c per pound base; soft steel hoops, 2.20c, full extras.

Structural Material.—Mill congestion on shapes is continually growing worse and has been made more so by car builders who have been following the policy of covering on each order when it was taken. Such specifications run into the last quarter and it is difficult to place new business for delivery earlier than 1914. As in other lines, the independent sellers are adhering to a policy of refusing second half business. The structural contracts placed during the past week aggregate 14,712 tons, most of which is made up by the two buildings to be erected by the Marshall Field estate. Contracts for these buildings were taken by the American Bridge Co. and the Morava Construction Co. The former was awarded 7,000 tons for the building at Wabash avenue and Randolph street, and the latter the same tonnage for the building at Wabash avenue and Washington street, Chicago. Work on the former will be delayed by the wrecking of the old building, but it is understood that the Washington street building will be begun in the near future, as the builder has mill contracts for sufficient steel to erect it. The American Bridge Co. has also taken 188 tons from the Hydraulic Engineering Co. of Maine for six transmission towers between St Louis and Keokuk, Ia., and 140 tons from the receivers of the Wabash Railroad Co., for I-beam and deck plate girders. The Hydraulic Engineering Co. has also placed a contract for 420 tons covering 240 sections of power house intake screens at Keokuk, Ia.

We quote, f. o. b. Chicago, as follows:

Beams and channels, 15 inch and under, 1.68c. For extras, see Pittsburgh report.

Store prices are as follows:

All angles, 3 inches and larger, including 6 inches, $2.05 per 100 pounds; angles over 6 inches, $2.15 per 100 pounds, base; beams, 3 to 15 inches, inclusive, $2.05 per 100 pounds, base; channels, 3 inches and larger, $2.05 per 100 pounds, base.

Rails and Track Fastenings.—While the larger part of the requirements of the western railroads has already been contracted for, it appears that there are some prospects for additional rail buying. Specifications against contracts for track fastenings are keeping up very well and some have been received against rail contracts made during the last quarter of last year. While there has been no change in quotations, prices are very firm with a probability that

the maintenance of the present rate of activity will bring about advances in spikes and bolts.

We quote light rails, f. o. b. Chicago, as follows:

Light rails, carloads, 25 to 45-pound, 1.30c; 16 to 20-pound, 1.35c; 12-pound, 1.40c; 8-pound, 1.50c.

Light section relayers, 45 pounds and under, subject to inspection, $22 to $24; standard section relaying rails, subject to inspection.

And track fastenings, f. o. b. Joliet, as follows:

Track fastenings, f. o. b. Joliet, angle bars 1.50c; railroad spikes, 1.95c; smaller size spikes, 1.75c base; track bolts with square nuts, 2.30c to 2.40c.

Plates.—Specifications against this material have been received calling for delivery in the second half, as car builders are following the same policy as adopted with structurals. As was expected, new orders are somewhat lighter when compared with the activity during the last few weeks of the year. Some promising business, however, is reported as pending. The Chicago, Rock Island & Pacific has ordered 500 gondola cars from the Standard Steel Car Co., and is in the market for 1,000 box cars, 200 refrigerator cars and 50 cabooses. The Michigan Central will build 400 box cars in its own shops. Prices on bolts in this territory remain firm on a basis of 1.50c, Pittsburgh.

We quote, f. o. b. Chicago, as follows:

Tank plates, ¼ inch thick, 6⅝ to 100 inches wide, 1.68c. For extras, see Pittsburgh report.

Store prices are as follows:

Tank steel, ¼ inch and heavier, up to 72 inches wide, $2.05.

Bolts, Nuts and Rivets.—Makers of bolts, nuts and rivets have enjoyed an equal degree of prosperity with other lines during the last few weeks and prospects for the coming year are very gratifying. The past week has seen a continuation of demand and prices are very firm on the basis established by recent advances.

We quote prices on bolts, nuts and rivets, as follows:

Rivets

Structural rivets, ½ to 1¼ inches, 2.38c. base, Chicago, in carload lots; boiler rivets, 0.10c additional.

Bolt and Nut Discounts

Carriage bolts up to ⅝ x 6 inches, rolled thread, 75-10; larger sizes, 70-2½.

Machine bolts, up to ⅝ x 4 inches, rolled thread, 75-10-5; cut thread 75-10; larger sizes, 70-7½.

Hot pressed nuts, square head, $5.70 off per cwt.; hexagon, $6.30 off per cwt.

Sheets.—The sheet market in this territory is very strong, first half capacity being exhausted and specifications running into the third quarter. There is evidence, however, that the mills in this territory are in better shape than some of those in the east, as some of the latter have recently asked western producers for help in meeting deliveries. One such inquiry asked for 5,000 tons for any delivery. Producers in this territory are quoting mill prices on a basis of 2.50c, Pittsburgh, for galvanized, and store prices are very strong.

We quote, f. o. b. Chicago, as follows:

Blue annealed, No. 10, 2.15c; No. 12, 2.20c. Box annealed, No. 28, 2.70c. Galvanized No. 28, 3.95c.

For mill prices, see Pittsburgh report. Freight to Chicago, 18 cents.

Wire Products.—Buying of this material is well distributed throughout all lines of trade and products. Prices are very strong, but there appear to be no indications of an advance in the near future. It is probable that the market will maintain the present level until spring, when active buying originated by new construction will cause higher quotations.

We quote, f. o. b. Chicago, as follows:

Wire nails, jobbers' carload lots, $1.93; retailers' carload lots, $1.98; retailers' less than carload lots, $2.03; painted barb wire, jobbers' carload lots, $1.93; retailers' carload lots, $1.98; retailers' less than carload lots, $2.03, with 40c for galvanizing; plain wire, jobbers' carload lots, $1.73; retailers' carload lots, $1.78.

Merchant Pipe and Tubes.—Makers of this material have just closed a record year with prices firmly established on a basis assuring a good margin of profit. While somewhat quiet owing to the usual inventories at the close of the year, activity is being maintained at about the same rate. Prices on some sizes are a little firmer.

We quote, f. o. b. Chicago, as follows:

Iron and Steel Pipe Basing Prices.

	Steel. Black.	Steel. Galv.	Iron. Black.	Iron. Galv.
Butt.				
⅛ inch and ¼ inch.	69.2	48.2	62.2	42.2
⅜ inch	73.2	62.2	66.2	....
½ inch to 1½ inch.	76.2	67.2	69.2	57.2
Lap.				
2 inch	73.2	64.2	65.2	54.2
4½ inch to 6 inch..	75.2	66.2	67.2	57.2
Card Weight.				
7 inch to 12 inch...	72.2	61.2	65.2	54.2
Extra Strong Plain Ends.				
Butt.				
⅛, ¼, ⅜ inch.....	64.2	52.2	58.2	46.2
½ inch	69.2	57.2	63.2	51.2
2 inch to 3 inch....	74.2	62.2	....	....
Lap.				
2 inch	70.2	58.2	64.2	52.2
7 inch to 8 inch....	64.2	52.2	58.2	46.2
Double Extra Strong.				
Butt.				
½ inch	57.2	45.2	....	....
¾ inch to 1½ inch	60.2	48.2	....	....
Lap.				
2 inch	58.2	48.2	....	....
4½ inch to 6 inch..	59.2	47.2	....	....
7 inch to 8 inch....	52.2	40.2	....	....

Tubes

	Lap weld steel. Per cent.	Charcoal iron. Per cent.	Shelby seamless. Per cent.
1 inch	37	..	55½
1¼ to 2¼ inch.....	53	38	34
2¾ to 3¼ inch.....	63	48	44
3½ to 4½ inch.....	65½	48	44
5 to 6 inch.....	53	..	..

Cast Iron Pipe.—A contract calling for from 1,000 to 1,500 tons of water pipe has been awarded to the United States Cast Iron Pipe & Foundry Co., which also was low bidder on a lot of from 3,000 to 4,500 tons at Minneapolis. Bids will be closed on 500 tons of pipe at Kalamazoo, Mich., today. Burlingame, Kan., will require 350 tons of pipe on which bids will be closed this week. It is understood that bids have been closed on 6,000 tons of water pipe required by Portland, Ore. The United States Cast Iron Pipe & Foundry Co. has also taken 1,500 tons from Toledo, O.

We quote, f. o. b. Chicago, as follows:

Four-inch water pipe, $31, 6 to 12 inches, $29, larger sizes, $28, gas pipe, $1 a ton higher.

Old Material.—The scrap market is rather spotted, the principal tendency displayed being downward. Old car wheels, however, continue to be scarce and prices have advanced to the neighborhood of $17. The situation, as concerns rerolling rails is somewhat easier and mills in this territory are able to operate on single shift with no difficulty. The scarcity, however, is still sufficiently pronounced to keep prices up and maintain production at 50 per cent capacity.

We quote delivery in consumers' yards, Chicago, as follows:

Gross Tons

Old car wheels	$16.75 to 17.25
Old iron rails	17.00 to 17.50
Rerolling rails (5 ft. and over)	16.25 to 16.75
Old steel rails (3 ft. and und.)	14.50 to 15.00
Frogs, switches and guards	13.75 to 14.25
Heavy melting steel	12.75 to 13.25
Shoveling steel	13.00 to 14.00

Net Tons

No. 1 R. R. wrought	$12.75 to 13.25
No. 2 R. R. wrought	12.25 to 12.75
Arch bars and transoms	16.75 to 17.25
Knuckles, couplers and springs	12.75 to 13.25
Shafting	16.75 to 17.25
Iron car axles	21.50 to 22.00
Steel car axles	18.25 to 18.75
Locomotive tires	13.50 to 14.40
Dealers forge	10.75 to 11.25
Pipe and flues	9.75 to 10.25
No. 1 cast	13.50 to 14.00
No. 1 busheling	11.25 to 11.75
No. 2 busheling	8.50 to 9.00
No. 1 boiler cut	9.25 to 9.75
Boiler punchings	13.00 to 13.50
Cast and mixed boring	7.25 to 7.75
Machine shop turnings	8.25 to 8.75
Railroad malleable	13.50 to 14.00
Agricultural malleable	12.25 to 12.75
Angle bars, splices, etc., iron	16.50 to 17.00
Angle bars steel	12.50 to 13.00
Stove plate and light cast scrap	11.00 to 11.50

CLEVELAND

Eastern Consumers Not Buying Lake Superior Ore

Office of THE IRON TRADE REVIEW,
Penton Bldg., Jan. 7.

Iron Ore.—Eastern consumers are not showing any disposition at present to buy Lake Superior ores. This hesitancy is attributed partly to the lowering of trans-Atlantic ocean freight rates, suggesting the possibility that some foreign ore may yet be imported, and partly to the expectation that iron ore may be placed on the free list by the tariff bill to be passed by the present congress.

There is still some contracting for the carrying of ore. A contract for the movement of 50,000 tons was made today. One shipper made a visit to a number of vessel offices without being able to get anyone to take his ore. The outlook is that there will be an active demand for ships all season and some shippers who have no vessel tonnage of their own are already beginning to feel uneasy. Every vessel owner expects to have a little free capacity, but no one will have as much as he would like, as chartering has been very heavy.

On base ores with the guarantee of 55 per cent on old range and Mesabi Bessemer, and 51½ per cent on old range and Mesabi non-Bessemer, we quote as follows: Old range Bessemer, $4.40; Mesabi Bessemer, $4.15; old range non-Bessemer, $3.60; Mesabi non-Bessemer, $3.40.

Pig Iron.—The most significant feature of the pig iron market at present is the steady buying by foundries for spot and early shipment, indicating that the tonnage purchased has not fully covered the requirements of the melters. Little difficulty is experienced by sellers in obtaining full prices. For delivery during the first half of this year, we quote as follows, delivered Cleveland:

No. 1 foundry	$18.25 to 18.75
No. 2 foundry	17.75 to 18.00
No. 2 southern	18.35 to 18.85
Bessemer	18.15 to 18.40
Lake Superior charcoal	19.10 to 19.75
Silveries 8 per cent silicon	21.55
Bessemer ferro, 14 per cent	29.55

Coke.—Foundries are making contracts for additional tonnages of coke, as many of them find that they have not contracted for enough to meet their requirements. Quotations are being firmly adhered to. We quote:

Connellsville furnace coke, $4.00 to $4.15 for prompt delivery, and $3.50 on contract for first half; Connellsville foundry coke, $4.50 to $4.65 for prompt, and $4.00 to $4.25 on contract.

Finished Material.—Following the heavy specifying on contracts immediately preceding the first of January, there has been some decrease in specifying, but this has no significance, as market conditions continue as favorable as at any time last year. In fact, buyers who hesitated some weeks ago are now in some cases placing their orders. For example, one concern which was in the market several weeks ago for 3,100 tons of plates and was told that the best delivery possible was second and third quarter has just entered its order, although informed that definite promise at the time specified several weeks ago could not now be assured. The Brown Hoisting Machinery Co. has taken the contract for Hocking Valley ore unloaders, at Toledo, involving about 700 tons of structural material. The Wheeling & Lake Erie ore unloaders at Huron, calling for from 800 to 900 tons of steel, have not been placed, but protection has been given to several companies that expect to bid. The Calumet bridge, in Chicago, calling for 3,300 tons of structural material, has been awarded to the Pennsylvania Steel Co. The King Bridge Co. was the next lowest bidder. The bar iron market conditions have been improved and the usual quotation is now 1.85c, Cleveland mill. Eastern Pennsylvania plate mills which have done a very large business during the past year continue to take orders at 1.60c to 1.65c mill. Deliveries on structural material are seldom promised before the third quarter of the year, except at premium prices. Railroads in this vicinity are expected to place orders for from 1,500 to 2,000 tons of bridge material at an early date.

Old Material.—Better inquiry has developed from outside districts for heavy belting steel, No. 1 busheling turnings and borings. Locally the market is quiet, but improved since the holiday and inventory seasons are over. Inquiries received this week came from Portsmouth, O., for turnings and borings and from the Pittsburgh district and the valleys for heavy melting steel, the latter grade being for shipment the first quarter. There is a decided falling off in receipts of miscellaneous scrap by Cleveland dealers. Not a shipment has been received during the past week, and small town dealers are not offering any. This is attributed to their being pretty well cleaned up and the impossibility to get any tonnage on account of the bad weather. This situation is expected to have a steadying influence on agricultural grades. The American Car & Foundry Co. recently put out an inquiry in Cleveland and surrounding districts for No. 1 busheling for its new mills in Detroit, and dealers said the company was willing to accept any tonnage offered. This opens an entirely new market in this locality for this grade. Detroit supplies will be inadequate to answer the demand with this new consumer in the market. The company also went into the market for borings, turnings and No. 1 wrought. Quotations follow:

Gross Tons.

Old iron rails	$17.75 to 18.50
Old steel rails (under 6 ft.)	15.00 to 15.50
Old steel rails (over 6 ft.)	16.25 to 16.75
Relaying rails	25.00 to 26.00
Old steel boiler plate	11.50 to 12.00
Malleable iron (railroad)	14.50 to 15.00
Steel axles	19.50 to 20.00
Axle turnings	12.50 to 13.00
Malleable iron (agricultural)	13.00 to 13.50
Heavy steel	13.25 to 13.75
Country mixed steel	11.00 to 11.50
Bundled sheet scrap	11.50 to 12.00

Net Tons.

No. 1 R. R. wrought	$14.00 to 14.50
No. 1 busheling	12.00 to 12.50
No. 1 machine cast	13.50 to 14.00
No. 1 dealers' wrought	11.50 to 12.00
Machine shop turnings	7.75 to 8.00
Pipes and flues	10.00 to 10.50
Wrought drillings	7.75 to 8.00
Cast borings	7.50 to 7.75
Stove plate	10.50 to 11.00
Wrought iron arch bars	17.00 to 17.50
Wrought iron piling plate	16.00 to 16.50

Will Build at Dayton, O.

The Corbin Screw Division of the American Hardware Corporation, New Britain, Conn., is to erect a large addition to its branch factory in Dayton, O. The present plant, which manufactures wood screws, is about 150 feet long and employs 350 hands. It is planned to double the size of the building and to increase its force of employes to 600.

CINCINNATI

Pig Iron Dull---Strong Hopes Entertained

Office of THE IRON TRADE REVIEW,
503 Mercantile Library Bldg., Jan. 7.

Pig Iron.—The market has not as yet shaken off the dullness that invariably accompanies the holidays just passed, and there is practically no new business being done at the present time. The majority of the melters in this territory appear to be fairly well covered for the first half of the year, and furnaces are not as actively soliciting business as is generally the case, because they have sold about as much of their output as they care to until they can better judge the trend of the market a little later on. Business with the dealers at the present time is mostly taken up with the forwarding of orders already on their books, and as the melters are generally asking for their full quotas according to their contracts, shipments are sometimes a little difficult, and in some cases are delayed, due to inadequate railroad facilities. This shows, however, that the foundries are melting a large amount of iron in comparison with their respective capacities, and there does not seem to be any liklihood of a let-up for some time to come. There is a growing feeling of confidence among the dealers that a better buying movement will spring up soon, and this, together with the other reasons given above, and also the fact that a scarcity of pig iron, especially in the south, is not an impossibility during the year to come, gives the market good prospects for the near future.

Prices in both the south and southern Ohio are unchanged, as there have been no developments lately to warrant anything along this line. The question as to whether the spot prices of last year have held over into this year is still pending, and can hardly be accurately determined until some new business of importance has been placed by those dealers holding the lower priced iron. Last year, spot prices in the south and southern Ohio were $13.50, Birmingham, and $16.50, Ironton, respectively, for No. 2 foundry iron, and first quarter quotations, $14, Birmingham, and $17, Ironton, respectively. Whether or not these first quarter prices will take the place of those previously given as prompt delivery prices after the market has become a little more active, is still a matter of conjecture. At present there still appears to be some southern and southern Ohio resale iron at $13.50, Birmingham, and $16.50 to $16.75, Ironton, respectively, to be had for spot shipment, but the majority of the furnaces are holding for the first quarter quotations given above, for any delivery.

The sale of 1,500 tons of southern foundry iron has recently been made for southern shipment on the basis of $14, Birmingham, for the first quarter. There are inquiries here for 700 tons of analysis iron from the south, for the second quarter; 200 tons of southern iron from central Ohio for spot shipment; 500 tons of southern No. 2 foundry and soft from southern Indiana, and 150 to 200 tons of silvery iron from northern Ohio for the first half. With freight rates $3.25, from Birmingham, and $1.20, from Ironton, we quote Cincinnati prices for the first and second quarters as follows, the higher quotations being for second quarter:

Southern foundry No. 1	$17.75 to 18.25
Southern foundry No. 2	17.25 to 17.75
Southern foundry No. 3	16.75 to 17.25
Southern foundry No. 4	16.50 to 17.00
Southern gray forge	16.25 to 16.75
Mottled	16.25 to 16.50
Southern No. 1 soft	17.75 to 18.25
Southern No. 2 soft	17.25 to 17.75
Standard southern car wheel	27.50 to 28.00
Northern No. 2	18.20
Northern No. 3	17.70
Northern No. 4	17.45
Silveries 8 per cent silicon	20.20 to 21.20

Coke.—Numerous inquiries for coke have again appeared in the market, but there is still but little new buying and selling, as the users are refusing to pay the prices on contract coke asked by the ovens at the present time. There is a decided scarcity of practically all grades of coke, and the furnaces especially are suffering, as the operators are being forced to bank them occasionally, which is a big handicap. Labor is reported to be scarce in the coke fields, as a great many of the laborers have not as yet returned from their holiday lay-offs, and the winter has been so mild that contractors, who employ a great many men have been able to keep large numbers busy. Users are in many cases, buying only as their immediate needs require, with the view that prices will recede about the first of April, when the demand for domestic coke falls away with warmer weather. We quote below from the leading coke producing districts as follows:

	Prompt shipment.	Contract.
Connellsville district:		
Foundry coke	$4.25 to 4.75	$3.75 to 4.00
Furnace coke	3.85 to 4.25	3.25 to 3.50
Wise county district:		
Foundry coke	$4.00 to 4.25	$3.75 to 4.00
Furnace coke	3.50 to 4.00	3.25 to 3.75
Pocahontas district:		
Foundry coke	$3.75 to 4.00	$3.25 to 3.75
Furnace coke	3.25 to 3.75	3.00 to 3.25
New River:		
Foundry coke	$3.75 to 4.25	$3.25 to 3.75
Furnace coke	3.25 to 3.75	3.00 to 3.25

Finished Material.—The local sheet mill is holding at its recently advanced prices of 2.35c for black sheets No. 28 gage, and 3.50c for galvanized sheets No. 28, Pittsburgh basis. Business is good considering the time of the year, as most of the buyers are at present taking inventory of their stock and the demand is never as heavy during the first part of January as it is throughout the year. Nevertheless, specifications are heavy and have not slackened in proportion with the demand for new business.

Small sales for the second half of next year continue to be made on steel bars and structurals at the same prices that have prevailed during the first half, namely, 1.40c to 1.45c for steel bars and 1.45c to 1.50c for structurals, Pittsburgh basis. The majority of the larger makers represented here state that they have closed contracts with about all of their old customers for most of their requirements up to Jan. 1, 1914.

Warehouse business has fallen off a little and prices are a little weaker. This is attributed to the usual dullness that prevails during the holidays and for some weeks that follow. Dealers are taking advantage of the situation and are replenishing their stocks, as a good buying movement is expected within a short time. We quote below warehouse prices f. o. b. Cincinnati, as follows:

Steel bars, 2c to 2.10c base; iron bars, 1.95c to 2.05c base; structurals, 2.10c to 2.20c base; plates, ¼ inch and over, 2.10c to 2.20c base; sheets, blue annealed, No. 10, 2.25c to 2.35c base; rivets, cone head, 2.60c to 2.70c base; cold rolled shafting, 58 per cent discount; steel hoops, 2.10c to 2.20c base; full extras; boiler tubes as follows: 1½ inch, 46 per cent discount; 1¾ to 2¼ inch, 57 per cent discount; 2½ inch, 60 per cent discount; 2¾ to 3¼ inch, 65 per cent discount; 3½ to 4½ inch, 68 per cent discount; 5 to 6 inch, 60 per cent discount;

soft steel cold twisted concrete bars, cut to length as follows: ¾ inch square and larger, 2.15c to 2.25c; ⅝ inch square and larger, 2.25c to 2.35c; ½ inch square and larger, 2.35c to 2.45c; 5-16 to ⅜ inch square and larger, 2.55c to 2.65c; and ¼ inch square and larger, 2.65c to 2.75c.

Old Material.—The scrap iron market has not as yet shaken off the dullness that settled upon it during the latter part of December. Prices are fluctuating to such an extent that in some cases a certain fixed level can hardly be assigned to them. It is quite probable, though, that stove plate could now be sold a little higher at from $8.50 to $9 per net ton. Heavy melting scrap has been selling all the way from $11.50 to $13 per gross ton, depending entirely upon the conditions of the sale. Dealers, however, are quoting it generally at from $12 to $12.50 per gross ton. It is generally conceded here that the scrap iron business cannot improve to any extent until a certain amount of the iron already in the market has been used up. The market is at present apparently overstocked and dealers, therefore, are not making any effort to add large lists to their yards. We quote below prices which dealers will pay and also dealers' selling prices in Cincinnati and vicinity, as follows:

Gross Tons

Old iron rails	$13.75 to 14.25
Old steel re-rolling	12.00 to 12.50
Old iron axles	18.25 to 18.75
Heavy melting scrap	12.00 to 12.50
Relaying rails	21.25 to 21.75
Bundled sheet scrap	9.00 to 9.50

Net Tons

Old No. 1 R. R. wrought	$11.25 to 11.75
No. 1 machine cast	11.50 to 12.00
No. 1 busheling	9.50 to 10.00
Stove plate	8.50 to 9.00
Machine shop turnings	7.50 to 8.00
Cast borings	7.75 to 8.25
Heavy turnings	8.00 to 8.50
Mixed cast	10.00 to 10.50
Malleable	7.75 to 8.25

PHILADELPHIA

New Year Opens Auspiciously

Office of THE IRON TRADE REVIEW, Philadelphia, Jan. 7.

The opening of the new year is attended by unusually favorable developments in almost every branch of the local iron and steel market. Activity is most marked in plates and shapes. The exception is the old material market, which has weakened and is very quiet. The volume of inquiry for pig iron is increasing and considerable activity is expected before the end of the month. Bar iron orders are a little larger than normal. Specifications for steel bars are coming in heavily and deliveries of sheets are still falling behind.

Pig Iron.—The resumption of business after the holidays finds eastern pig iron consumers interested mainly in getting the material which they have purchased on contract for first quarter delivery. There is a pressure for delivery in all grades, and especially low phosphorus and foundry iron. Although it is still considered a little early to buy for the second half, current orders are fair and the volume of inquiry is growing. A little Virginia No. 2X has been sold at the full price of $16 at the furnace. Three hundred tons of gray forge for January delivery were sold at $17.50, delivered to an eastern consumer. Several other lots of foundry and mill iron were placed during the week, the regular market prices being firmly maintained. An eastern consumer has inquired for from 500 to 1,000 tons of coke malleable iron for January shipment, and another is in the market for 500 tons of charcoal iron for the first half. An eastern radiator concern is in the market for 3,000 tons of No. 2X foundry and a Delaware river pipe foundry is inquiring for an indefinite tonnage of pipe iron. An eastern car builder wants from 600 to 700 tons of low grade iron. The inquiry for 7,500 tons of pipe iron, reported last week, is still before the market. It is reported that the recent inquiry for 5,000 tons of basic was from a broker who wished merely to feel the market. There have been no important developments in the basic market the past week, as the leading buyers are well covered. Some eastern furnaces have withdrawn from the market for the first quarter on No. 2 foundry.

We quote for prompt and last quarter shipment delivered to consumers plants, in Philadelphia and vicinity as follows:

Eastern Pa. No. 1X foundry	$18.75 to 19.00
Eastern Pa. No. 2X foundry	18.50 to 18.75
Eastern Pa. No. 2 plain	18.25 to 18.50
Standard forge (Eastern Pa.)	17.50 to 17.75
Basic (Eastern and Central Pa.)	18.00 to 18.25
Virginia No. 2X	18.65 to 18.80
Southern No. 2	18.00 to 18.50
Malleable	19.50 to 20.00
Low phosphorus, Philadelphia	24.00 to 24.50

Iron and Steel Bars.—Steel bar specifications are coming in in large volume, but there is a slight lull in new business. Two large inquiries from eastern consumers are now before the market. One is for 1,000 tons of steel bars for delivery during the first quarter and the other for 1,000 tons of rivet rods, first quarter. There is some doubt as to whether the latter can be closed. Sales of prompt steel bars up to carload lots continue to be made by eastern makers at 1.85c, delivered Philadelphia. Bar iron for the first half continues to be sold at 1.60c at eastern Pennsylvania mills. Up to 1.80c has been made on prompt shipment in urgent cases. Specifications are coming in well and new orders are a little larger than normal.

We quote for delivery to consumer's plants in Philadelphia and vicinity: Steel bars at 1.55c to 1.60c on contract and common bar iron at 1.67½c to 1.77½c. Prompt steel bars on mill shipments are quoted at 1.85c to 1.95c delivered and from store are quoted at 2c to 2.15c, delivered. Cut nails are quoted from $1.85 to $1.90, Philadelphia. Shafting is quoted at 60 and 55 off in base territory.

Shapes and Plates.—Specifications for plates continue to come in heavily from all parts of the country, and from all kinds of consumers, particularly car building plants, which are very busy. One car builder on Friday, called for the immediate delivery of 2,500 tons. New bnsiness continues to be booked by the leading eastern Pennsylvania mills at 1.60c and 1.65c, Pittsburgh. These interests refused to take a large tonnage of shapes, plates and bars, last week, at less than the inside price and the contract, which calls for delivery up to June 30, was finally placed with a Pittsburgh mill at 1.50c, Pittsburgh. The feeling is prevalent among certain eastern mills that conditions warrant an advance of $3 a ton on plates, but such an advance is considered unlikely. Inquiries for plates and shapes from Canadian car and bridge builders continue to be received and now involve several thousand tons. Specifications for shapes are coming in as well as was expected and considerable new business is being offered. Eastern Pennsylvania mills have sold a little miscel-

laneous plain material for prompt delivery at from 1.75c to 2c, delivered. The McClintic-Marshall Construction Co. is reported to have taken between 400 and 500 tons for bridge work for the New York Central. Lewis F. Shoemaker & Co. have taken 400 tons for pier 38, South Wharves, Philadelphia, for the Philadelphia & Reading. The Pennsylvania railroad has awarded 260 tons of bridge material to the Pennsylvania Steel Co.

We quote delivered to consumers' plants in Philadelphia and vicinity: Sheared steel plates on contract 1.60c to 1.75c; universal steel plates on contract, 1.60c to 1.80c; sheared plates for early delivery, 1.75c to 1.85c; universal plates for early delivery 1.80c to 1.85c; structural shapes on contract 1.60c to 1.75c; structural shapes for early delivery 1.80c to 2.00c. Plates and shapes from store are quoted at 2.15c to 2.25c delivered.

Sheets.—The demand for sheets is very urgent and specifications continue to be filed in large volume. Deliveries are still losing ground. Prices are firmly maintained.

We quote for delivery to consumer's plants in Philadelphia and vicinity, No. 10 gage blue annealed sheets at from 1.95c to 2.05c.

Semi-Finished Steel.—A New Jersey consumer which recently inquired for 3,300 tons of open-hearth billets has placed the contract with an eastern Pennsylvania maker. The price is not stated. Some small tonnages are pending, but most of the makers are so well booked that they are unable to quote. Prices are very strong.

We quote delivered to consumer's plants in Philadelphia and vicinity 4 x 4-inch open-hearth and Bessemer rolling billets at $28.50 to $30.50 and forging billets at from $34.50 to $38.50.

Old Material.—As a result of the recent heavy liquidation of dealers' stocks and the consequently large supplies at the mills, the local old material market weakened last week and prices generally, with the exception of car wheels, showed a decline. Dealers are not stocking up, but are holding their business for the latter part of the month, when it is expected that higher prices will prevail. Only a few small sales, in urgent cases, were made last week.

We quote gross tons delivered to consumers' plants in eastern Pennsylvania and western New Jersey, as follows:

Old iron rails	$18.00 to 18.50
Old steel rails (rerolling)	16.00 to 16.50
No. 1 heavy melting steel	14.25 to 15.25
Old car wheels	15.50 to 16.00
Old iron axles	25.00 to 26.00
Old steel axles	20.50 to 21.50
No. 1 railroad wrought	16.00 to 16.50
Wrought pipe	13.00 to 14.00
Cast borings	11.00 to 11.50
Machine shop turnings	11.25 to 11.75
Heavy cast (broken)	15.00 to 15.50
Malleable	13.50 to 14.00
Stove plate	11.50 to 12.00
No. 1 forge	13.00 to 13.50
Low phosphorus	19.00 to 19.50

Freight rates per ton on scrap from Philadelphia to principal eastern consuming points are: $0.60 to Ivy Rock, Pa.; $0.65 to Phoenixville, Pa.; $0.80 to Coatesville, Pa.; $0.85 to Bethlehem, Pa., Reading, Pa., and Roebling, N. J., $1.10 to Pottsville, Pa., Lebanon, Pa., and Columbia, Pa.; $1.20 to Harrisburg and Steelton, Pa.; $1.40 to Milton, Pa.

BIRMINGHAM

More Interest in Pig Iron

Office of THE IRON TRADE REVIEW,
Birmingham, Ala., Jan. 7.

Pig Iron.—Interest has revived to a more or less appreciable extent in practically all quarters of the trade with the resumption of foundry operations, although the tonnage so far engaged in the year is of small proportion. Within the week, a lot of 2,500 tons of special analysis iron, for shipment into northern and southern territory, was sold at an advance over a schedule of $14.50 per ton at Birmingham for No. 2 foundry, and the sale of 2,000 tons of charcoal iron, for first half delivery, is confirmed at $25 per ton at Birmingham. The analysis iron referred to is for delivery in the next 60 to 90 days, and the price consideration is about in line with the premiums usually paid for the analysis stipulated. Regular foundry grades in such quantities as were required in the week, sold at $14.25 to $14.75 per ton at Birmingham, depending largely upon the brand specified, and the delivery necessary. The aggregate of such sales is very small, although inquiry is now pending for some 35,000 tons. In this tonnage pending, some first half and third quarter requirements are included. Hence the early requirement, that in which the furnace interests are chiefly concerned, is considerably less than is indicated. The conditions at the several furnace plants as to delivery of the tonnage engaged are about the same as have existed for some two months. The largest producers are still considerably behind with specifications, and the tonnage available for prompt forwarding cannot be delivered at a satisfactory rate, owing to the scarcity of equipment. Stock figures of Jan. 1 have not been compiled. It is now understood that two additional stacks will be blown in on foundry iron during this month, but one stack now in blast is soon to be blown out for relining. The market is no doubt stronger than last reported, but with the light trading, prices are somewhat undetermined, especially for advanced deliveries. We quote as below, per gross ton, f. o. b. cars at Birmingham furnaces, for shipment in the first quarter, viz.:

For delivery during the remainder of this year and first quarter next:

No. 1 foundry	$14.50 to 15.00
No. 2 foundry	14.00 to 14.50
No. 3 foundry	13.50 to 14.00
No. 4 foundry	13.00 to 13.50
Gray forge	12.50 to 13.00
Mottled	12.00 to 12.50
Standard basic	14.00 to 14.50
Off basic	11.00 to 11.50
Charcoal	25.00 to 25.60

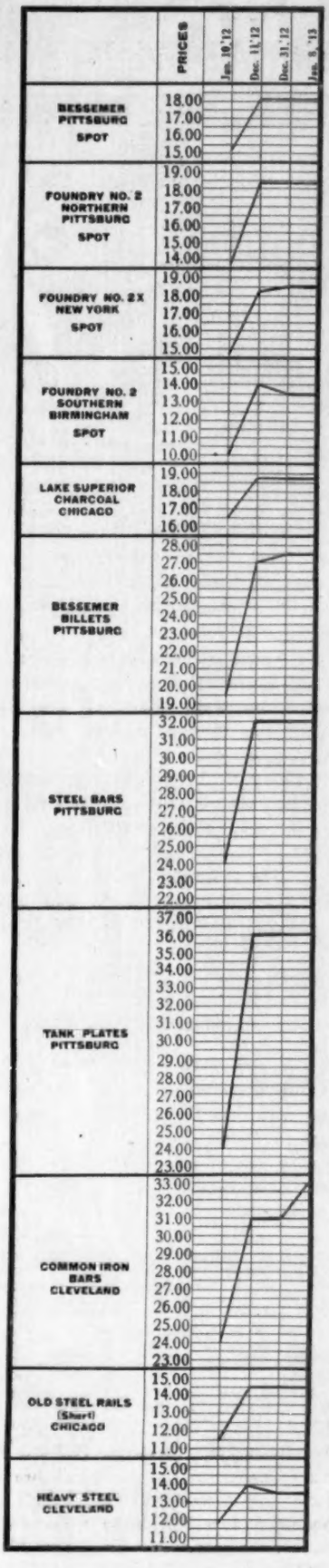
Cast Iron Pipe.—The available producing capacity, or the capacity in operation prior to the holidays, will hardly be operated for another 30 days, owing to the scarcity of orders for certain sizes; however, the producing interests have several large municipal requirements in sight, and prices are being adhered to firmly. Actual specifications have been submitted for some 7,000 tons of pipe and fittings for Portland, Ore., and an aggregate of some 5,000 tons for smaller requirements is soon to be placed. For 4-inch water pipe $24.50 per net ton at foundry is being asked, with $22.50 per net ton for 6-inch, and larger sizes. Gas pipe is quotable at an advance of $1 per ton over the figures asked for water pipe, and fittings are worth $47.50 to $50 per net ton at foundry.

Old Material.—Recent specifications against contracts are very heavy, and delivery is being made with more or less difficulty by all local dealers, owing to the light receipts at yards within the past 10 days. Very little new business has been placed since last report, but with the small stock accumulations, both on the yards of consumers, and of dealers, prices are probably firmer. The schedule below is quoted as representing prices dealers are asking for their holdings, and is subject to change with the local conditions. The quotations are per gross ton, f. o. b. cars here, viz.:

Old iron axles (light)	$15.50 to 16.00
Old steel axles (light)	15.50 to 16.00
Old iron rails	15.50 to 16.00
No. 1 R. R. wrought	13.00 to 13.50
No. 2 R. R. wrought	11.50 to 12.00
No. 1 country wrought	10.00 to 10.50
No. 2 country wrought	9.00 to 9.50
No. 1 machinery cast	11.50 to 12.00
No. 1 steel scrap	11.00 to 11.50
Tram car wheels	11.00 to 11.50
Standard car wheels	13.00 to 13.50
Light cast and stove plate	10.00 to 10.50

Sota & Aznar, of Bilbao, Spain, are closing their Philadelphia branch office at 811 Arcade building, that city. They have appointed as exclusive selling agents of their iron ore in this country, Potts & Wittman, 650 Real Estate Trust building, Philadelphia. The change became effective on Jan. 1. V. de Ysasi, hitherto manager of the American branch of Sota & Aznar, will return to London in a few weeks to resume his connection with the English offices of the company.

PRICE CHART



ST. LOUIS

Limited Demand for Pig Iron

Office of THE IRON TRADE REVIEW,
St. Louis, Jan. 7.

Pig Iron.—With the exception of the sale of 1,000 tons of northern basic, business was confined to small orders in the St. Louis territory last week, with indications of improvements today. Sales agents do not look for any improvement until stock-taking has been finished. Prices of southern No. 2 range from $14 to $14.50, Birmingham basis, although the lower figure probably more nearly reflects the market conditions. Northern iron is still quoted at $18.50, Chicago furnace, and at $16.50, Ironton. Our tabulated prices on southern iron, delivered, remain as follows:

Southern No. 1	$18.25 to 19.25
Southern No. 2	17.75 to 18.75
Southern No. 3	17.50 to 18.50
Southern No. 4	17.25 to 18.25

Coke.—There is virtually no inquiry out for coke, and none is looked for within the next two weeks. Some buying of small lots is reported, daily, however.

We quote 72-hour Connellsville foundry grades, $4.50 for immediate shipment or delivery; prompt 48-hour Connellsville furnace, $4.00; contract, $3.25; best 72-hour Virginia foundry, for immediate shipment, $4.25, and for next year, $4.00; 48-hour Virginia furnace, $3.25 to $3.50. The freight to East St. Louis and St. Louis is $2.80, and $2.70 from the Virginia fields when shipment is destined beyond St. Louis.

Old Material.—Conditions are about at a standstill in the St. Louis territory regarding scrap iron. The mills and foundries are buying, and indications are good for an advance in prices. Stocks in the dealers' yards are very low, and the approaching cold weather is preventing the railroads from picking up their scrap. These conditions, it is believed, will cause prices to advance, or at least not to go any lower. The Missouri Pacific railroad closed a list today for 1,500 tons. The Wabash is expected to close for 1,000 tons, and the Vandalia for 300 tons before the end of the week. Prices which dealers are willing to pay f. o. b. East St. Louis, follow:

Gross Tons

Old car wheels	$15.00 to 15.50
Old iron rails	15.00 to 15.50
Rerol'g rails (5 ft. & ov.)	15.00 to 15.50
Old st'l rails (3 ft. & und.)	14.00 to 14.50
Light section relayers (45 lbs. and under) subject to inspec.	24.00 to 25.00
Relay'g rails, subject to inspec.	24.00 to 25.00
Frogs, switches and guards	13.50 to 14.00
Heavy melting steel	13.50 to 14.00
Shoveling steel	11.75 to 12.00

Net Tons

No. 1 railroad wrought	$12.25 to 12.50
No. 2 railroad wrought	12.00 to 12.25
Arch bars and transoms	15.00 to 15.25
Knuckles, couplers, springs	12.00 to 12.50
Shafting	15.00 to 15.50
Steel car axles	16.50 to 17.00
Iron car axles	20.00 to 21.00
Locomotive tires	13.00 to 13.50
Pipe and flues	8.00 to 8.50
Tank iron and cut boilers	8.00 to 8.50
No. 1 cut busheling	11.00 to 11.50
No. 2 cut busheling	9.00 to 9.50
Cast and mixed borings	7.25 to 7.75
Machine shop turnings	8.75 to 9.25
R. R. malleable	12.00 to 12.50
Agricultural, malleable	10.50 to 11.00
Stove plates	9.00 to 9.25
Angle splice bars (iron)	13.50 to 14.00
Angle splice bars (steel)	12.50 to 12.75

Spring Meeting of A. S. M. E.

The spring meeting of the American Society of Mechanical Engineers will be held at Baltimore, May 20 to 23. One of the excursions outlined provides for a trip to Annapolis, which will be made by boat, and the visitors will have an opportunity to see the grounds and buildings on which $15,000,000 recently have been expended. An excursion also will be made to the hydro-electric plant of McCalls ferry on the Susquehanna river and various points of interest in Baltimore will be visited, including the new sewerage disposal plant recently installed at an expense of $20,000,000, the new system of municipal docks, as well as the principal industrial plants in the Baltimore district.

The party of mechanical engineers which will attend the meeting at Leipzig, Germany, will sail from New York, June 10.

Taken Over by White Engineering Co.

The White Engineering Co., Bellefonte, Pa., manufacturer of power hammers, gray iron, steel and brass castings, has taken over the plant of the J. Howard Lingle Co., which has been shut down. The White Engineering Co. has acquired the right to manufacture the Lingle power hammer and, in addition, a general foundry and machine shop business will be conducted. Special attention will be given to the manufacture of crucible and alloy steel castings. The officers of this company follow: Richard T. White, president and general manager of the machinery department; Victor E. Rehr, secretary, treasurer and general manager of the foundry department. Mr. White formerly was connected with the Cramp Shipbuilding Co., Philadelphia, and Mr. Rehr was associated with the National Transit Co., Oil City, Pa.

NEW YORK

Heavy Demand for Structural Material Assured

Office of THE IRON TRADE REVIEW,
1115 West Street Bldg., Jan. 7.

Pig Iron.—While the buying was light during the last days of 1912, and has continued so thus far into the new year, the market has lost none of the healthful tone that was so pronounced throughout the latter half of last year. There is but a small margin of first quarter forward capacity not engaged and needs of melters show no sign of lagging. Shipments are being requested on contract time in most cases and here and there pressure is being brought to anticipate deliveries. With the exception of slight concessions that were reported last week on resale lots of southern iron, prices have kept firm. A scarcity of malleable is denoted by the fact that one inquiry for a 1,000-ton lot for prompt delivery was difficult to place at the price established by previous awards. This business is reported to have been placed at a slight premium. There may be some scattered lots of southern iron still available at $13.50, but this is generally believed to total an unimportant amount, and that it will quickly disappear as the month advances. Total sales in this market since Jan. 1, are estimated at between 15,000 and 20,000 tons of all grades.

Northern foundry No. 1	$18.75 to 19.00
Northern No. 2X foundry	18.50 to 18.75
Northern No. 2 plain	18.25 to 18.50
No. 2 Virginia	18.80 to 19.00
No. 2 southern foundry	18.50 to 18.75
Malleable	19.50 to 20.00
Gray forge	17.50 to 17.75

Ferro-Alloys.—Inquiries aggregating about 700 tons of ferro-manganese are before the trade. The demand for prompt delivery amounts to 150 tons, and 500 tons for forward delivery from one consumer is wanted. Sales of carload lots for early shipment have been made at from $69 to $70. Ferro-silicon is quiet and quoted at unchanged prices.

We quote standard English 80 per cent ferro-manganese at $73 to $75, seaboard, for early shipment, $70, seaboard, for first half and $65 for second half; 50 per cent ferro-silicon on contract at $75, Pittsburgh or Philadelphia, for carloads, $74, for larger lots, and $73, for 600 tons or more.

Plates.—Congested conditions continue at mills, and the less active placing of orders during the last days of 1912 and since Jan. 1, has supplied a not unwelcome breathing spell. While no general advance in price has been announced, or is contemplated, higher figures could easily be obtained on business for shipment within five weeks. It is reported that some sellers have been induced to accept premiums on orders for February delivery. The New York Central, the Toledo & Ohio Central and the Big Four railroads have each placed orders for 1,000 gondola cars. The Newport News Ship Building & Dry Dock Co. has taken an order for two vessels. There is still a large tonnage of plates and other car equipment material pending which is expected to be booked shortly. There is practically no free capacity within four months and but a small margin up to the end of the first of the year.

We quote, delivered at New York tidewater, for first quarter, 1.76c to 1.86c New York, on sheared plates. Some makers are asking $1 higher for universal plates. On third quarter and last half contracts, Pittburgh district, makers are quoting 1.61c to 1.66c, New York.

Structural Material.—What strength has been lost in less active closing for fabricated material is fully made up for by advancement in important prospective business, such as the progress made in the New York and Brooklyn subway and elevated railroads, and the consummation of various real estate deals that will ultimate in extensive building operations. Fabricating plants are still filled close to capacity for from three to four months, besides a large amount of business spreading over through the third quarter. It is reported that the leading maker of plain material is holding at full prices for future deliveries to be made at its convenience. Contracts awarded during the closing week of the old year and the first of 1913, are as follows: The McClintic-Marshall Construction Co. will supply 450 tons for the General Electric Co.'s building at Schenectady and 1,400 tons for New York Central area work. Lewis F. Shoemaker & Co. will supply 260 tons for the same contract. The Pennsylvania railroad has ordered 790 tons of bridge material, 740 tons of which went to the Pennsylvania Steel Co., and 50 tons to the Cambria Steel Co.; the Noelke-Richards Iron Works secured the contract for 360 tons for a boiler house for the Central Heating Co. The Boston & Maine placed orders for three bridges aggregating 360 tons, one of 170 tons with the Boston Bridge Works, one of 150 tons with the Pennsylvania Steel Co. and one of 90 tons with the Fort Pitt Bridge Co. The Wisconsin Bridge Co. will furnish 700 tons for a viaduct in Utah for the American Smelting & Refining Co. The Phoenix Bridge Co. secured awards for 850 tons for a bridge at Geddes, N. Y., and 6,000 tons for the Commonwealth pier at Boston. Lewis Shoemaker & Co. will supply material for the Reading pier at Philadelphia, amounting to 360 tons.

We quote for New York delivery for first quarter as follows: Structural shapes, 1.66c to 1.76c. On third quarter and last half contracts, Pittsburgh district makers are quoting 1.61c to 1.66c New York.
Structural shapes from store, 2.15c.

Semi-Finished Steel.—There is urgent demand for billets, which cannot be filled to requirements, resulting in a somewhat reduced activity at mills. Relief from this condition is not looked for until additional producing capacity is put in operation.

We quote for New York delivery, steel bars on contract from 1.56c to 1.61c and common iron bars at 1.65c to 1.70c. Steel bars from store are quoted at 2.05c.

Cast Iron Pipe.—The City of Boston has placed a contract with the Standard Cast Iron Pipe & Foundry Co. for 7,000 tons of 6 and 8-inch pipe for delivery at Boston. Bids have gone in on 1,100 tons of pipe ranging from 6 inches to 30 inches for the Borough of Brooklyn. Awards will be announced on Jan. 17.

We quote six-inch pipe at from $24 to $26, f. o. b. New York, in carload lots.

Old Material.—The conditions of the scrap market have not changed. Quietness has prevailed since the middle of December, with dealers' prices ruling fairly firm.

Old car wheels	$13.50 to 13.75
Old iron axles	22.00 to 22.50
Steel axles	17.00 to 17.50
Old steel shafting	16.50 to 17.00
No. 1 heavy melting steel	12.25 to 12.50
No. 1 R. R. wrought	14.25 to 14.50
Wrought pipe (not galvanized)	11.00 to 11.25
Cast borings	8.75 to 9.00
Machine shop turnings	8.75 to 9.00
Heavy cast	12.00 to 12.50
Stove plate	9.25 to 9.50
Grate bars	8.25 to 8.50

Freight rates on scrap per ton to Steelton, Pa., Columbia, Pa., Pottsville, Pa., and Harrisburg, Pa., are $1.50 from Jersey City, and $2.00 from New York; to Coatesville, Pa., Ivy Rock, Pa., Phoenixvile, Pa., and Reading, Pa., $1.50 from Jersey City, and $1.80 from New York; to Bethlehem, Pa., $1.10 from Jersey City, and $1.60 from New York; to Roebling, N. J., $1.00 from Jersey City, and $1.50 from New York; to Milton, Pa., $1.60 from Jersey City, and $2.00 from New York; to Jersey City, $1.00 from New York; to Newark, $1.10 from New York

BUFFALO

Important Structural Awards Made

Office of THE IRON TRADE REVIEW, Buffalo, Jan. 7.

Pig Iron.—The closing week of the old year showed a placement of fully 55,000 tons of pig iron of all grades, largely for last half of 1913 requirements, but the opening week of the new year was marked by a noticeable absence of inquiry and buying, resulting in the booking of a very small tonnage. The inventory period may account for this, but it is believed to be an effort on the part of consumers to influence a softening of prices by withholding buying. The movement is materially offset by the heavy volume of specifying which continues to pour in upon the furnaces. Immediate requirements are not only being sought, but consumers are sending in urgent letters to the producers calling for the certain shipment of their January iron under contract, and also, in many cases, appealing for their February quotas. It is apparent from the viewpoint of the furnace interests that many foundries are underbought, and that a heavy purchasing movement will possibly develop before the end of the present month, although January and February, in ordinary years, are considered quiet months. The cessation of buying on the part of consumers is considered a move by users to gain an advantage by the turn of the year or the change of the administration at Washington. They are looking for anything that can happen, to happen. On the other hand the sold-up condition of the furnaces, the pressure for iron under contract and the momentum of business in all lines, all indicate that price changes will be upward rather than downward. The following range, f. o. b. Buffalo, represents the market:

No. 1X foundry	$17.50 to 18.25
No. 2X foundry	17.25 to 18.00
No. 2 plain	17.00 to 17.75
No. 3 foundry	16.75 to 17.50
Gray forge	16.50 to 17.25
Malleable	17.25 to 18.00
Basic	18.00 to 18.25
*Charcoal	18.25 to 19.25
*Some grades	22.00

Finished Material. — All the mills and agencies in the district report the carrying over into 1913 of a tremendous tonnage of unfilled orders. This is so large, based on material already ordered and specifications due to come in during the first and second quarters, that the mills enter the new year with less than one-third of their total tonnage for sale that can be delivered during 1913. Some of the mills have a larger and others an even smaller amount of available tonnage to dispose of, but the average will be less than one-third. The holiday and inventory period lessening of specifying has been welcomed by the mills, not as an opportunity to catch up on orders, but to afford them a brief breathing spell in which to size up the situation confronting them. From all quarters it is reported that unless there is a complete reversal of the present situation, bringing about a large cancellation of tonnages placed, there will be a marked scarcity of steel for sale and delivery during 1913.

Present indications point to 1913 as the biggest year the steel people have ever had, unless there is a complete change of sentiment. The strength of the demand both here and abroad show no indications of such a development. While 1912 was the record year for the mills in tonnage and one of large profits to the jobbers, the indications are that 1913 will be the banner year for the mills in the matter of profits, having already rid their books of the large tonnages contracted at the lower price levels during the early stages of the buying movement of last year.

This year opens as a decidedly strong sellers' market. The mills having the next eight or nine months in which to dispose of their possible available product over the closing months of the year, it is apparent that the orders accepted will be at the mills' terms, combined with the advantage of selecting to whom the remaining tonnage shall be sold.

In structural material the Buffalo Structural Steel Co. is low bidder for the steel required for the new Masten Park high school, Buffalo, N. Y., amounting to fully 1,500 tons, Metz Brothers Co., Buffalo, being low bidders on the general contract. The American Bridge Co. has been awarded the contract for the steel in the Hamburg Turnpike viaduct, at Buffalo over the Buffalo Creek Railway and the Buffalo Ship canal, requiring about 750 tons. The Lackawanna Bridge Co. secured the contract for steel in the addition to the Bond plant of the American Radiator Co., Buffalo, requiring 250 tons. This company also secured the contract for the steel in the new plant of the J. P. Devine Co., Buffalo, requiring about 200 tons. The Devine company is to build a plant for the manufacture of vacuum drying apparatus, which will include a machine, erecting and boiler shops and office building.

Old Material.—Very few transactions have taken place in the scrap market since the turn of the year. The market has opened slack with but a limited number of inquiries coming out. So far, however, the let-up has had no apparent change in the price situation as the dealers are inclined to the belief that the present slack-water stage will be followed soon by the development of a demand which will warrant the maintaining of the present schedules. Prices for gross tons, f. o. b. Buffalo, are substantially as follows:

Heavy melting steel	15.00 to 15.50
No. 1 railroad wrought scrap	15.25 to 15.75
No. 1 R. R. and mch. cast sc'p	13.50 to 14.00
Old steel axles	15.75 to 16.50
Iron axles	23.25 to 23.75
Car wheels	16.00 to 16.75
Railroad malleable scrap	13.25 to 13.50
Wr'ght iron and soft steel turn.	8.75 to 9.00
Cast iron borings	8.00 to 8.50
Low phosphorus steel scrap	16.75 to 17.25
Old iron rails	15.00 to 15.50
Tank iron	10.25 to 10.75
Boiler plate, sheared	14.50 to 15.00
Pipe and tank	10.00 to 10.50
Stove plate	11.25 to 11.75
Sheet iron	7.75 to 8.25
Locomotive grate bars	11.25 to 11.75

Foundrymen Discuss Efficiency

The Philadelphia Foundrymen's Association held its 224th meeting at the Hotel Walton, that city, on Jan. 2. The main feature was the reading of a paper on "Efficiency in Office and Foundry", by Loyal S. Wright, sales manager of the Sheldon School, of New York, Chicago and Philadelphia. This talk was very much enjoyed and was followed by a lengthy discussion. During the meeting, a resolution was adopted endorsing the bill for the reduction of the first-class postage rate, introduced at Washington by Senator Penrose and Representative Donohoe. This bill calls for a rate of 1 cent per ounce on first-class mail matter for delivery in the same city in which it is posted.

The Associated Foundry Foremen of Philadelphia will hold their regular monthly meeting at 1325 Columbia avenue, that city, on Jan. 8, at eight o'clock sharp. Prof. Robert J. Sterrett, of the University of Pennsylvania, and also counsel for the mine workers' organization, will speak on "Workmen's Accident Compensation".

The American Bakers Machinery Co., St. Louis, has increased its capital stock from $5,000 to $50,000.

NEW LIST

Adopted by Charcoal Iron Boiler Tube Makers.

As had been expected for some time, charcoal iron boiler tube makers have announced the adoption of the steel boiler tube schedules of weights and prices. The new list is effective immediately. Iron boiler tube makers have issued, or are issuing, new discounts in which sizes are grouped slightly different and discounts show advances of about one point.

Price lists of iron and steel boiler tubes are now identical. A study of the new list affecting iron boiler tubes indicates that outside diameters are not changed; the Birmingham wire gage remains the same and thickness in inches will continue the same as provided in the card of Jan. 1, 1908.

In standard iron boiler tubes, differences in weight per foot pound are noticed. Sizes 1-inch and 1¼-inch show no changes. Sizes 1½, 1¾ and 2-inch show advances of 0.02 pound per foot. Sizes 2¼, 2½ and 2¾-inch show advances of 0.03 pound per foot; 3 inches, 0.04; 3¼, 3½ and 3¾-inch, 0.05 pound per foot; 4-inch, 0.06; 4½-inch, 0.08 pound per foot, and 5-inch, 0.07 pound per foot.

Sizes 2¼, 2¾, 3, 3½, 3¾ and 5-inch show advances ranging from 0.01 to 0.03 in the price list per foot for standard tubes. One ex. wire gage, two ex. wire gage, three ex. wire gage and four ex. wire gage show similar increases in weights and about the same differences in pounds per foot. New and old price lists and schedules of weights are given herewith and discounts on both iron and steel boiler tubes also are offered.

In answer to inquiries sent out about a fortnight ago, leading makers of charcoal boiler tubes advised that the new schedule of weights and list prices would be adopted the early part of January and it is understood that the new discounts already are general.

Makers of oil country goods have issued new lists, which conform to the standard pipe list effective Jan. 1. Oil country goods are sold on separate discounts and what has been said regarding the new standard pipe prices and weights applies to tubing, casing, and other oil country products.

Ground will be broken this week for a new plant to be erected by the Standard Automatic Machine Screw Co., Cleveland, on a tract, 110 x 140 feet, on Superior avenue N. E., east of East Fifty-fifth street, and near Addison road N. E. The company has outgrown its present quarters at 437 Prospect avenue N. W. The new plant will be four stories, 100 x 110 feet, and of steel, concrete and brick construction. It is proposed to use the front of the lower floor for store rooms and offices for the company.

LAP WELDED CHARCOAL IRON BOILER TUBES

Outside diameter inches.	Nearest Bg m. wire gage.	Standard Thickn's. inches.	Standard Wt. per ft. lbs.	Standard Price per ft.	One extra wire gage. Wt. per ft. lbs.	One extra wire gage. Price per ft.	Two extra wire gages. Wt. per ft. lbs.	Two extra wire gages. Price per ft.	Three extra wire gages. Wt. per ft. lbs.	Three extra wire gages. Price per ft.	Four extra wire gages. Wt. per ft. lbs.	Four extra wire gages. Price per ft.
1	13	.095	.90	$0.30	1.04	$0.35	1.13	$0.38	1.24	$0.42	1.35	$0.45
1¼	13	.095	1.15	.28	1.33	.33	1.45	.36	1.60	.39	1.74	.43
1½	13	.095	1.42	.27	1.62	.32	1.77	.34	1.96	.38	2.14	.42
1¾	13	.095	1.68	.22	1.91	.26	2.09	.30	2.31	.33	2.53	.36
2	13	.095	1.93	.20	2.20	.24	2.41	.28	2.67	.32	2.93	.36
2¼	13	.095	2.19	.22	2.49	.27	2.73	.31	3.03	.35	3.32	.38
2½	12	.109	2.78	.28	3.05	.34	3.39	.39	3.72	.44	4.11	.49
2¾	12	.109	3.07	.31	3.37	.38	3.74	.44	4.11	.51	4.56	.57
3	12	.109	3.37	.34	3.69	.41	4.10	.48	4.51	.55	5.00	.62
3¼	11	1.20	4.01	.40	4.46	.48	4.90	.55	5.44	.63	5.90	.70
3½	11	1.20	4.33	.43	4.82	.52	5.30	.60	5.88	.68	6.38	.76
3¾	11	1.20	4.65	.47	5.18	.56	5.69	.65	6.32	.73	6.86	.82
4	10	.134	5.53	.55	6.09	.65	6.76	.74	7.34	.83	8.23	.92
4½	10	.134	6.25	.62	6.88	.73	7.64	.83	8.30	.94	9.32	1.04
5	9	.148	7.67	.76	8.52	.88	9.27	1.00	10.40	1.10	11.23	1.23

LAP WELDED STEEL BOILER TUBES

Outside diameter inches.	Nearest Bg m. wire gage.	Standard Thickn's. inches.	Standard Wt. per ft. lbs.	Standard Price per ft.	One extra wire gage. Wt. per ft. lbs.	One extra wire gage. Price per ft.	Two extra wire gages. Wt. per ft. lbs.	Two extra wire gages. Price per ft.	Three extra wire gages. Wt. per ft. lbs.	Three extra wire gages. Price per ft.	Four extra wire gages. Wt. per ft. lbs.	Four extra wire gages. Price per ft.
1	13	.095	.90	$0.30	1.04	$0.35	1.13	$0.38	1.24	$0.42	1.35	$0.45
1¼	13	.095	1.15	.28	1.33	.33	1.45	.36	1.60	.39	1.74	.43
1½	13	.095	1.40	.27	1.62	.32	1.77	.34	1.96	.38	2.14	.42
1¾	13	.095	1.68	.22	1.91	.26	2.09	.28	2.31	.31	2.53	.34
2	13	.095	1.93	.20	2.20	.22	2.41	.24	2.67	.27	2.93	.29
2¼	13	.095	2.19	.22	2.49	.25	2.73	.28	3.03	.30	3.32	.33
2½	12	.109	2.78	.28	3.05	.31	3.39	.34	3.72	.37	4.11	.41
2¾	12	.109	3.07	.31	3.37	.34	3.74	.38	4.11	.42	4.56	.46
3	12	.109	3.37	.34	3.69	.37	4.10	.41	4.51	.45	5.00	.50
3¼	11	.120	4.01	.40	4.46	.45	4.90	.50	5.44	.55	5.90	.59
3½	11	.120	4.33	.43	4.82	.49	5.30	.53	5.88	.59	6.38	.64
3¾	11	.120	4.65	.47	5.18	.52	5.69	.57	6.32	.63	6.86	.69
4	10	.134	5.53	.55	6.09	.61	6.76	.68	7.34	.74	8.23	.83
4½	10	.134	6.25	.62	6.88	.69	7.64	.77	8.30	.83	9.32	.93
5	9	.148	7.67	.76	8.52	.86	9.27	.93	10.40	1.04	11.23	1.13
6	8	.165	10.28	1.02	11.19	1.12	12.57	1.26	13.58	1.36	14.65	1.47
7	8	.165	12.04	1.20	13.11	1.32	14.74	1.48	15.93	1.60	17.19	1.72
8	8	.165	13.81	1.38	15.03	1.50	16.90	1.69	18.28	1.83	19.73	1.97

VARIED VIEWS

Expressed by Manufacturers Replying to Congressman.

Congressman Whitacre, of Ohio, recently sent out a letter to manufacturers, urging that all who were interested in tariff revision should open their books for examination by experts employed by congress. A number of interesting replies to this letter have been received.

Judge Gary replying to Mr. Whitacre, said:

"I have just had the privilege of reading your letter to the American Steel & Wire Co., relating to the tariff. The object of this letter is simply to say that I wish all public officials from the president down would occupy and maintain a position so intelligent, honorable and fair as the one you seem by your letter to occupy. Just treatment to all interests should be the watchword of everyone interested in any question."

Fear of the effect on labor in case of a radical revision of the tariff was expressed by John A. Topping, chairman of the Republic Iron & Steel Co. He said that capital can adjust itself to any condition and has the means to get along during a transitory period. He added that "the records will show that the steel manufacturers were the only representative body submitting facts justifying revision who recommended revision downward in accordance with these facts."

J. C. Wicks, general manager of the Garry Iron & Steel Co., Niles, O., replying to Mr. Whitacre, succinctly said: "More power to you."

Offering to open its books to "any congressmen or set of congressmen," the United Steel Co., Canton, O., expressed the opinion that the proposed tariff revision is a "huge farce."

Officers of McKeefrey & Co., Leetonia, pig iron, coke and limestone, appear to consider the addressing of the letter to manufacturers as an affront.

In a reply to protesting manufacturers Representative Whitacre assures them that the present ways and means committee has been granted authority and means to employ experts presumably to gather information on which to base tariff bills and that the letter is written in entire good faith. He expresses opposition to any destruction of tariff rates without cause.

The Concrete Steel Co., Cincinnati, has reduced its capital stock from $100,000 to $5,000.

MEMBERS ELECTED

By Institute Committee—Date Set For General Meeting in May.

Directors of the American Iron and Steel Institute have selected Friday and Saturday, May 23 and 24, as the date for holding the next general meeting of the Institute in New York City. Pres. James A. Farrel, of the United States Steel Corporation, has been named chairman of a strong special committee to have general charge of the arrangements.

The institute has adopted as the symbol of danger to be used in works controlled by its members, the large red disk already in use in some plants. The use of this symbol is now recommended to all members by the directors.

The committee on membership of the institute has announced that at its meeting last Friday the following men were elected to membership:

Harvey G. Baldwin, Cleveland, superintendent order and warehouse department, American Steel & Wire Co.

Howard L. Bodwell, Vandergrift, Pa., assistant district manager, American Sheet & Tin Plate Co.

Samuel M. Cooper, McKeesport, Pa., manager Woods Works, American Sheet & Tin Plate Co.

Henry R. Cornelius, Pittsburgh, sales manager, Mesta Machine Co.

Christopher R. Corning, 36 Wall street, New York City, consulting mining engineer.

Wm. L. Hoodhue, Bridgeport, O., district manager, American Sheet & Tin Plate Co.

John A. Gross, Gary, Ind., manager, American Sheet & Tin Plate Co.

Thos. J. Haley, Canal Dover, O., district manager, American Sheet & Tin Plate Co.

James H. Hammond, Carnegie, Pa., president Superior Steel Co.

Wm. A. Harris, Canton, O., manager, roll and machine works, American Sheet & Tin Plate Co.

Wm. H. McCune, Vandergrift, Pa., chief chemist, Vandergrift works, American Sheet & Tin Plate Co.

Alex. G. McKenna, Washington, D. C., metallurgical superintendent, Washington Steel & Ordnance Co.

Chas. W. Martin, Niles, O., superintendent, Deforest Sheet & Tin Plate Co.

S. W. Nicholson, Cambridge, O., manager, Guernsey works, American Sheet & Tin Plate Co.

George L. Norris, Pittsburgh, engineer of tests, American Vanadium Co.

Wm. J. Patterson, 51 Water street, Pittsburgh, president Heyl & Patterson, Inc.

David S. Pyle, New Castle, Pa., manager Shenango works, American Sheet & Tin Plate Co.

Geo. S. Shimer, Milton, Pa., president Milton Mfg. Co.

Ura S. Smiley, Monessen, Pa., mill manager, American Sheet & Tin Plate Co.

M. Aubrey Smith, Vandergrift, Pa., superintendent open hearth, American Sheet & Tin Plate Co.

Herbert M. Steele, Pittsburgh, inspector, American Sheet & Tin Plate Co.

George C. Stone, New Castle, Pa., manager, American Sheet & Tin Plate Co.

Charles S. Thomas, Niles, O., general manager, Deforest Sheet & Tin Plate Co.

Harry W. Goddard, Worcester, Mass., president, Spencer Wire Co.

ELECTED PRESIDENT

W. D. Crawford Chosen Chief Executive of La Belle Company.

William D. Crawford has been elected president of La Belle Iron Works, Steubenville, O., succeeding I. M. Scott, whose resignation has just been accepted. Mr. Crawford was formerly vice president and general manager of the company.

I. M. SCOTT

The new president of La Belle company was for a number of years identified with the Schoenberger works of the American Steel & Wire Co., and is well known in the iron and steel trade throughout the country. Alexander Glass, Wheeling, W. Va., has been chosen to fill a vacancy in the board of directors. He has been associated with the Wheeling Corrugated Co.

W. D. CRAWFORD

Mr. Scott retires from the presidency of La Belle company to become head of the new Wheeling Sheet & Tin Plate Co., which is now building a plant in the Wheeling district.

DISCUSS WELFARE

Annual Banquet of Carnegie Steel Officials Much Enjoyed.

The Carnegie Steel Co. held its sixteenth annual banquet of the operating officials last Saturday night, at the Duquesne Club, Pittsburgh. James A. Farrell, president of the United States Steel Corporation, was the honor guest of the occasion. In an informal way, he spoke of the conditions prevalent in the steel industry today.

Judge James H. Reed acted as toastmaster and addresses were made by the following: Alva C. Dinkey, president of the Carnegie Steel Co., on the "Welfare of the Company"; Levi H. Burnett, assistant to the president, on the "Welfare of the Workmen"; and H. P. Bope, first vice president, on the "Welfare of the Customer".

Following the addresses, gold watches were presented Herbert P. Howell, former assistant to the vice president, who became vice president of the Bank of Commerce, New York City, on Jan. 1, and James Scott, who retired from active service as superintendent of the Lucy, Isabella, Edith and Neville blast furnaces, Dec. 31, after 35 years' service with the company. Gifts were presented by President Dinkey. Andrew Carnegie, W. E. Corey and Charles M. Schwab sent regrets of their inability to attend.

Chicago Steel Foundry Co.'s New Plant

Work on the addition to the new plant of the Chicago Steel Foundry Co. is under way and the foundations have been completed. The new building is 160 feet long and 140 feet wide, and will be used for cleaning and shipping rooms. It is being erected to take care of the increased capacity caused by the installation of a new 2-ton Bessemer converter previously mentioned in these columns. Shipment has been delayed somewhat on the latter, but David Evans, president of the Chicago Steel Foundry Co., expects that it will be installed and in operation by the middle of February.

METAL MARKETS

Copper Strong—Tin Demand Good

New York

Jan. 6.

Copper. — Although surface indications do not show that a general buying movement among copper consumers has been under way, yet selling agencies report that business has been much better the past week than for a month or more. The firmness of prices lends color to the latter description of market conditions. The general market is now 17.75c, delivered, 30 days, for electrolytic, 17.75c to 17.87½c for lake and 17.50c for casting. Europe has bought some metal in this market, but the demand from abroad does not reflect the full needs there for fresh supplies. Exports of copper since Jan. 1 are 1,023 tons.

Tin. — The demand for domestic consumption has been satisfactory, and due to decreasing stocks, prices that appeared to be at a dizzy height a year ago, when 7c per pound below this week's average, are now accepted as legitimate, and readily paid. Spot tin has fluctuated within a few shillings of £229 in London, and between 50.50c and 50.75c in New York. Some buying was done for delivery in February and March at 50.25c. Stocks in New York as of Jan. 1 were 1,290 tons. Since that date arrivals aggregate 259 tons and there are 2,845 tons afloat.

Lead.—Consumers have shown more interest in lead since Jan. 1, and the market has a firmer tone. Prompt shipments from the west are held at 4.35c, in New York, by all sellers.

Spelter.—The spelter market seems to be reflecting early resumption of buying. There is less disposition to press sales by producing interests, and prices are somewhat firmer. Prime western is held at 7.30c in New York.

Antimony.—Resale lots of antimony continue to keep the market below importers' prices. Cookson's is 10.12½c, Hallett's is 9.62½c, and other grades from 9c to 9.25c.

Chicago

Jan. 6.

New Metals.—The market for new metals in this territory is comparatively firm, particularly when compared with some previous weeks.

We quote dealers' selling prices, f. o. b. Chicago, as follows:

Lake copper, carload lots, 17⅝c; casting, 17½c; smaller lots, ¼c to ¾c higher. Spelter, car lots, 7.20c; lead, desilverized, 4.27½c; sheet zinc, 9c, f. o. b. Lasalle, in car lots of 600-pound casks; pig tin, 50.72c. Cookson's antimony, 10⅛c; other grades, 9c.

Old Metals.—There is comparatively little change in the market for old metals compared with those maintaining before the holidays; about the same quotations are ruling.

We quote dealers' selling prices, f. o. b. Chicago, as follows:

Copper wire, crucible sheets, 17c; copper bottoms, 14½c; heavy red brass, 13¼c; heavy yellow brass, 10¼c; No. 1 red brass borings, 12½c; No. 1 yellow brass borings, 9.25c; brass clippings, 10½c; lead pipe, 4½c; zinc scrap, 5½c; tea lead, 4c; No. 1 aluminum, 20c; No. 1 pewter, 36c; block tin pipe, 47c; tin foil, 40c; linotype dross, 3½c; stereotype plates, 4c; stereotype dross, 3.50c; prime slab zinc dross, $131 a ton.

Chicago Foundrymen's Club

The annual meeting of the Chicago Foundrymen's Club will be held Saturday evening, Jan. 11, at the Great Northern hotel, Chicago. New officers, including a president, vice president, secretary-treasurer and four directors, will be elected. The directors whose terms of office expire include J. G. Garrard, William Breckenridge, Thorfin Mauland and Oliver Holdsmith. The terms of the following directors do not expire until 1914: A. M. Thompson, E. W. Smith, E. J. Welsh and William Pederson. In addition to the election of officers and reports of standing committees, there will be a general discussion of plans for the ensuing year. Special attention will be paid to formulating plans for the entertainment of the visiting foundrymen during the 1913 foundry convention, which will be held in Chicago.

Howard M. Davis, sales manager for the Phillips Sheet & Tin Plate Co. in the Philadelphia district, has taken a financial interest in the Apollo Steel Co., of Apollo, Pa., and has arranged to act as eastern sales representative for that company through the New England states and New York, Pennsylvania, Maryland, New Jersey, Delaware and Virginia. His connection with the Apollo Steel Co. will not conflict with his present position.

FLOODS FEARED

In the Pittsburgh District. — Semi-Finished Steel Scarce.

Pittsburgh, Jan. 8. (By wire.) — High waters and threatened floods in Western Pennsylvania and eastern Ohio may seriously affect plants in those districts. The Pittsburgh weather bureau predicts a flood this afternoon three feet higher than the danger line.

Several small lots of malleable for prompt delivery have been sold the last few days at between $17.25 and $17.50 valley. Dealers continue to obtain $18, valley, on small blocks of foundry, for prompt delivery, although it is believed that a large tonnage could be obtained at $17.50, valley.

Scarcity of semi-finished steel products has made it difficult to quote the market, except in a nominal way. An expression was made in the trade this morning that it is almost impossible to obtain material at any figure. Finishing mills have been affected considerably on account of the scarcity.

Changes in Officers

Owing to the increase in the business of the Carbon Steel Co., Pittsburgh, last year, it has been decided to divide the duties formerly performed by S. M. Wetmore, general superintendent. Mr. Wetmore has been appointed manager of sales, and is succeeded as general superintendent by C. E. Middleton, formerly assistant superintendent of the Shoenberger plant of the American Steel & Wire Co., whose long service with that company thoroughly equips him for the duties of the new position. D. R. Wilson, formerly in the eastern sales department of the Carbon company has been elected treasurer.

More New Members

In addition to the names of newly elected members of the American Iron and Steel Institute, published on page 143 of this issue, the following should be included:

Edwin S. Griffiths, Cleveland, general manager, the Cleveland Machine & Mfg. Co.

Chas. H. Johnson, producer of limestone, New Castle, Pa.

Luther L. Knox, Pittsburgh, president Keystone Furnace Construction Co.

W. A. Stanton, 111 Broadway, New York City, brick manufacturer.

European Ore Disappears From Eastern Market

And Greater Activity Appears in Developing Domestic and Cuban Properties—Growing Importance of the Island—South American Deposits

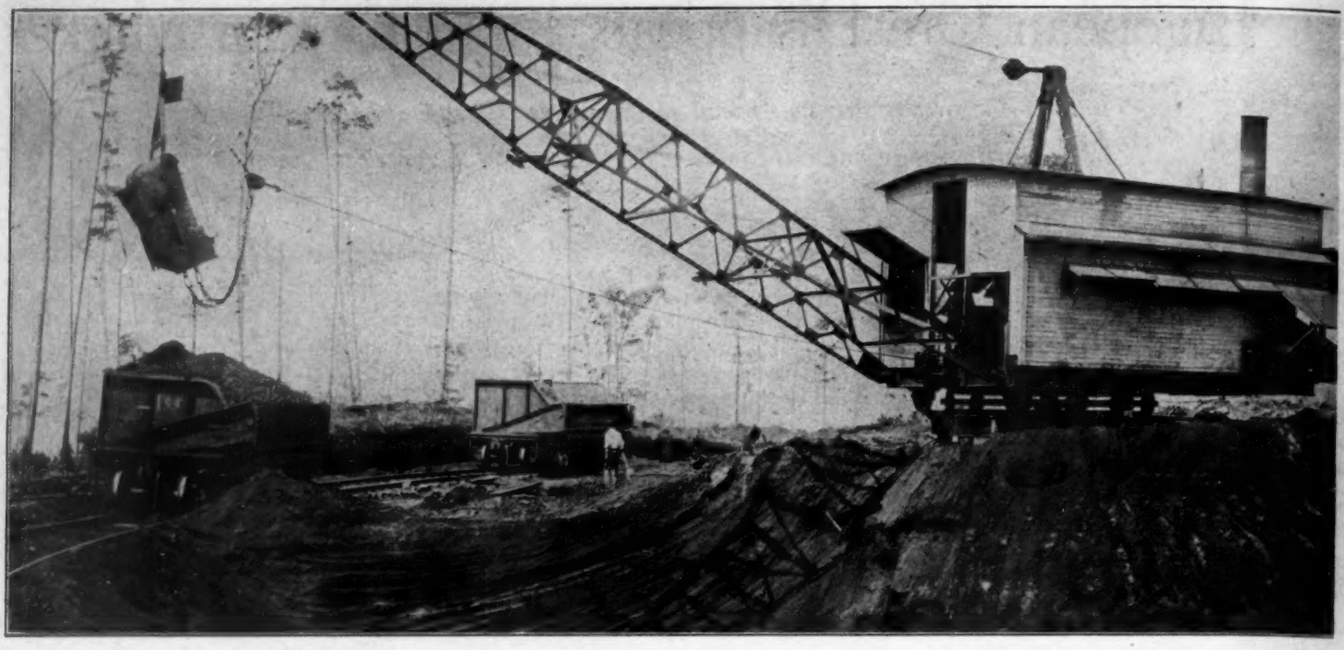
By C J Stark

Two results stand out prominently from the conditions that have surrounded the eastern iron ore market during the year of 1912. One is the practical elimination of trans-Atlantic foreign ore as a competitive material in the eastern Pennsylvania district under the prevailing world-wide prosperity of the iron and steel industry; the other is the renewed energy that is being given to the development of domestic and nearby foreign sources of supply which are calculated ultimately to provide a more fixed and favorable base of requirement for eastern blast furnaces. This development of new or enlarged sources of supply embraces the local ore deposits of New York, New Jersey and other nearby states and such North American resources beyond the borders of this country which are readily accessible to the eastern seaboard, such as Cuba, South America and Canada.

The virtual withdrawal of European ores from eastern Pennsylvania consumers on new contracts at the present time is the result of the unusually active operations of the iron and steel industry of England, Germany, Belgium and other European countries which have afforded more attractive prices and increased consumptive demands for such material nearer to the mining plant. The prices obtained for this ore in European markets have been much more profitable to the foreign miners than those that have prevailed in the United States during the past six or eight months. The ocean freight market, which always plays a very important part in determining the commercial success of the importation of ore, has been a strong contributing factor in shutting out trans-Atlantic ore from the eastern seaboard. There has been a world-wide demand of great extent for freight vessels during the past year and charter rates have been on a plane so high as to be almost unprecedented. This scarcity of tonnage and the high freights prevailing have weighed particularly against the importation of those ores which are shipped from Mediterranean ports. At one time in the year, chartering was done from Marbella, Spain, to Philadelphia, at 12s 9d, which is said to have been the highest freight paid between these points in almost 20 years. Normally this port takes about 1s higher freight than Sagunto. Towards the close of the year, there was an easier condition to the charter market and in December a cargo was done from Sagunto to Philadelphia at 9s 3d, which was the lowest of the entire year.

A very significant development of the year growing out of the narrowing of the American market for their ores, was the determination of Sota & Aznar, leading Spanish ore merchants, to close their American office in Philadelphia, Jan. 1, 1913. This firm has been a heavy seller of Spanish Bessemer and low phosphorus ores to eastern Pennsylvania furnaces during the past five years and in that period has imported about 1,350,000 tons, handling in 1910, 440,000 tons. During the current year, only about 90,000 tons of Spanish ore were shipped into this country and most of this was imported during the first half of the year on contracts closed during the final months of 1911 or early in 1912, when prices were more favorable to the furnacemen. At that time, the price of Spanish Bessemer ore was about 7¼

MINE NO. 21, PORT HENRY IRON ORE CO., MINEVILLE, N. Y.



THE SPANISH-AMERICAN IRON CO.'S

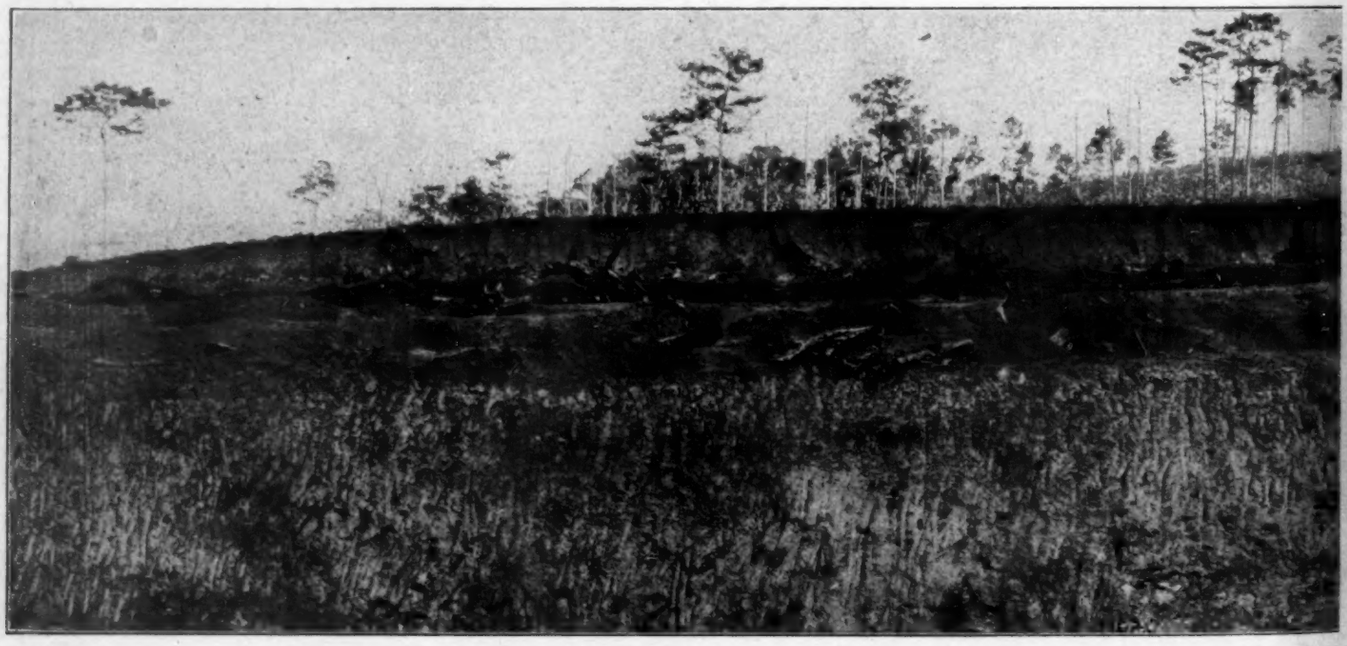
cents per unit of iron, f. o. b. cars Philadelphia. Late in the year this same grade of ore was held at 7¾ to 8 cents per unit. African, Grecian and other Mediterranean ores which have been used in the east in varying quantities for a number of years disappeared entirely from the list of importations in 1912.

Opportunity For Lake Ores

Under the prevailing conditions affecting imported material and the increased furnace operations, Lake Superior ores have the best opportunity for liberal use in the mixture of eastern Pennsylvania consumers that they have enjoyed for several years. In fact, it is estimated that the consumption of lake ore in 1913 in the eastern Pennsylvania district will exceed more than 1,000,000 tons and will be the largest since 1906, when about 1,500,000 tons of Superior ore went east. At the official price for 1913 delivery, Mesabi non-Bessemer ore delivered in eastern Pennsylvania represents a unit cost of 9.4 cents, Cuban ore for the same delivery was quoted at 8¾ to 9 cents, delivered, and local and Port Henry ores from 8¼ to 9 cents, delivered, depending upon the quality and the destination. The limited supply of ore available from these sources, however, compared with the much greater consuming demand, offers great opportunities to the miners of lake grades.

Foreign Ore Imports

Total foreign imports of ore to the United States in 1912 were about 2,150,000 tons, or the second highest in history, being exceeded only by 1910, when the total was 2,591,031 tons. They were more than 400,000 tons ahead of the total of 1911, which was 1,811,732 tons. Eliminating the Cuban, Newfoundland, Canadian, Venezuelan and other North American ores which aggregate over 1,700,000 tons, it leaves



A CONTINUATION OF THE PANORAMIC VIEW OF THE SPANISH-AMERICAN IRON

IRON MINES AT MAYARI, CUBA

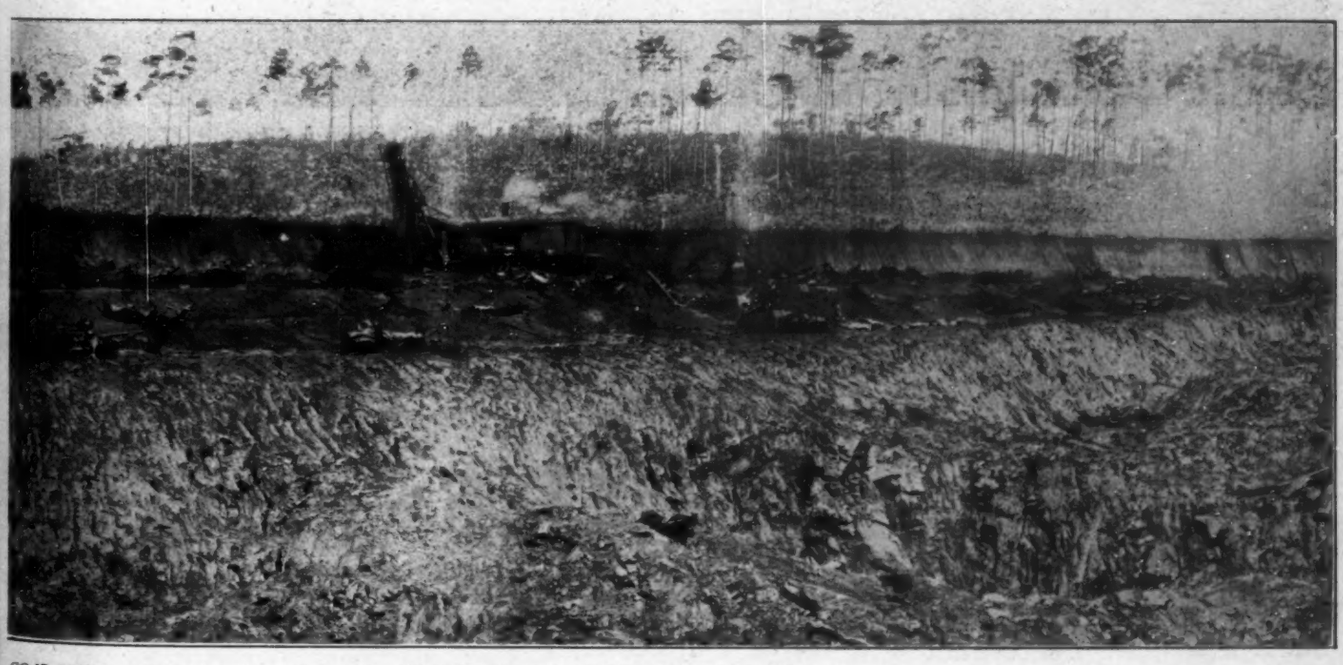
about 425,000 tons of ore received from trans-Atlantic sources. In 1911, the trans-Atlantic imports reached about 435,000 tons, in 1910, about 775,000 tons and in 1909, about 500,000 tons. The falling off in 1911 was due to inactive trade conditions in the eastern Pennsylvania district. The further decline in 1912 is due to just the opposite condition, that is, to a state of prosperity among European consumers, which caused them to absorb larger quantities of ores. The decline in trans-Atlantic imports likely would have been much more pronounced but for the Swedish ore which came in to fill an increase of about 200,000 tons, or from 50,000 to 250,000 tons in the yearly quotas of the long-term contract running with the Bethlehem Steel Co. In other words, apart from this single contract, only about 170,000 tons of trans-Atlantic ore were received by American furnaces. In 1911, excepting Swedish, about 215,000 tons were received, in 1910 about 515,000 tons and in 1909 about 380,000 tons.

Great Importance of Cuba

The estimated imports of foreign ore by countries in 1912 were as follows:

Cuba	1,425,000
Sweden	330,000
Newfoundland	170,000
Spain	90,000
Canada	90,000
Scattering	40,000
Grand total	2,145,000

More and more, if it has not yet been fully demonstrated, the commanding importance of the iron ore deposits of Cuba with relation to the eastern market, is becoming emphasized. As the development of these properties expands year after year, the vast extent of the deposits is becoming more clearly proven. Their geographical position with respect to the eastern Pennsylvania furnace zone is among the most favorable of all

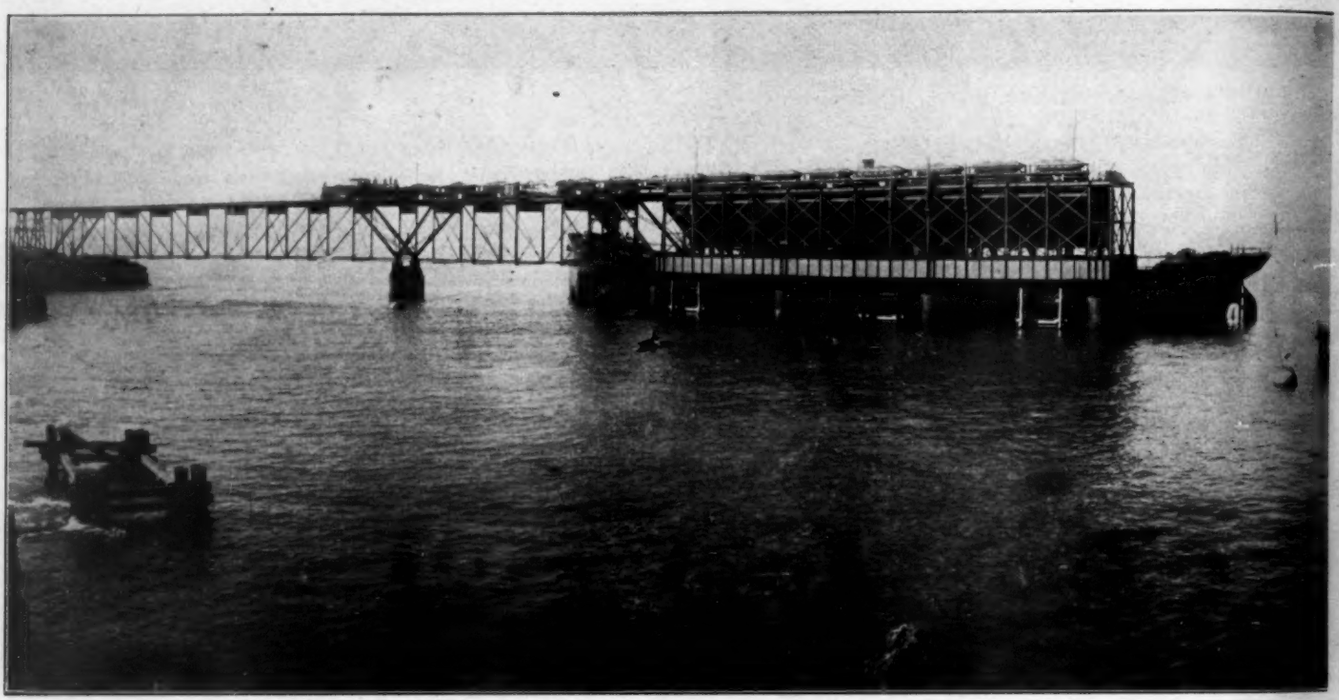


CO.'S MINES AT MAYARI, CUBA, AND SHOWN IN THE ABOVE ILLUSTRATION

the sources of supply outside the boundaries of the United States that feed that active center of pig iron production. The difficulties and uncertainties that surround the carriage of iron ore great distances across the seas have on many occasions impressed themselves with practical weight upon eastern furnacemen. Cuba's comparatively short distance from Baltimore and Philadelphia and the fact that its situation is such that it enjoys a steady commerce with the leading eastern ports greatly reduce the unfavorable features of ocean ore haul, in that ample shipping accommodations can normally be obtained. As the companies operating in Cuba have their developments on such an advanced scale that they can assure shippers of an attractive tonnage annually, they are able to effect favorable time charter arrangements for vessels. Nevertheless, the great demand for freight tonnage that prevailed throughout the world in 1912 was strongly felt by the Cuban ore companies and on occasions the latter were unable to make the full shipments they desired.

To a greater extent than for many years past, Cuban ore became in 1912 a merchantable material for eastern Pennsylvania furnaces, due to the offering in the market by the Ponupo Manganese Co. of its output of El Cuero ore from the south coast and of surplus tonnages of Daiquiri or south coast and Mayari or north coast ore by the Spanish-American Iron Co. Prior to 1912, the output of the Ponupo properties had been absorbed by the Spanish-American Iron Co. in addition to its own production of ore. The Ponupo Manganese Co. in the year shipped to eastern furnaces its full output of about 150,000 tons. The Spanish-American Iron Co. sold in the market about 40,000 tons of Daiquiri and 30,000 tons of Mayari ore. This was the first time since it has been controlled by the present interests, the Pennsylvania Steel Co. and the Maryland Steel Co., that the Spanish-American Iron Co. has been a seller of any of its mined products. Usually it has consumed in the furnaces of these two steel companies all the ore that it has mined, and in fact, as stated, it has until recently been a buyer of ore. For the Daiquiri ore, a 68 per cent Bessemer material, for delivery before Jan. 1, 1913, it received 7¼ cents per unit of iron, f. o. b. cars tidewater, and at the year's close, was asking a minimum of 8 cents per unit for first half shipment. Mayari nodules were used by the Pennsylvania and Maryland Steel companies and by other eastern Pennsylvania furnaces which purchased the material for manufacturing a special high grade pig iron, containing nickel and chromium. This iron commands high prices, selling at from $22 to $23 at the furnace. The El Cuero Bessemer ore sold in the year was done at 7 cents per unit, f. o. b. cars, tidewater, for the first half and 7¼ cents per unit for the second half. A sale of 35,000 tons of this year for delivery in the first half of 1913 was made in September at 8 cents per unit, f. o. b. tidewater, or about 35 cents advance. This sale was the first ore sale to be made in the east for next year's delivery and established this market on a higher level. An interesting development in the sale of El Cuero ore in the year was the discovery that some of this ore analyzed within the strict low phosphorus limits, or about 0.009 per cent with iron running 60 per cent natural. Such quality of ore was sold to makers of low phosphorus pig iron at 9 to 9½ cents per unit, tidewater.

Total Cuban shipments to the United States in 1912 were approximately 1,425,000 tons, about equaling the high mark in history which was 1,451,096 tons, in 1910. In 1911, the shipments were 1,147,849 tons. The Spanish-American Iron Co. shipped by far the greatest tonnage from its Daiquiri and Mayari holdings of any of the three active mining companies in Cuba. The shipments of this company were about 950,000 tons, embracing about 500,000 tons of natural ore from the Daiquiri or south coast mines, and the remainder from its Mayari or north coast properties, in the form of nodules. Of the battery of 12 nodulizing kilns in the Mayari district, only eight were in continuous operation throughout the year, but these produced a tonnage exceeding their rated capacity. The Mayari mining operations continue to be steadily expanded, the crude ore extracted in the year being about 1,000,000 tons before treatment, or the largest of any

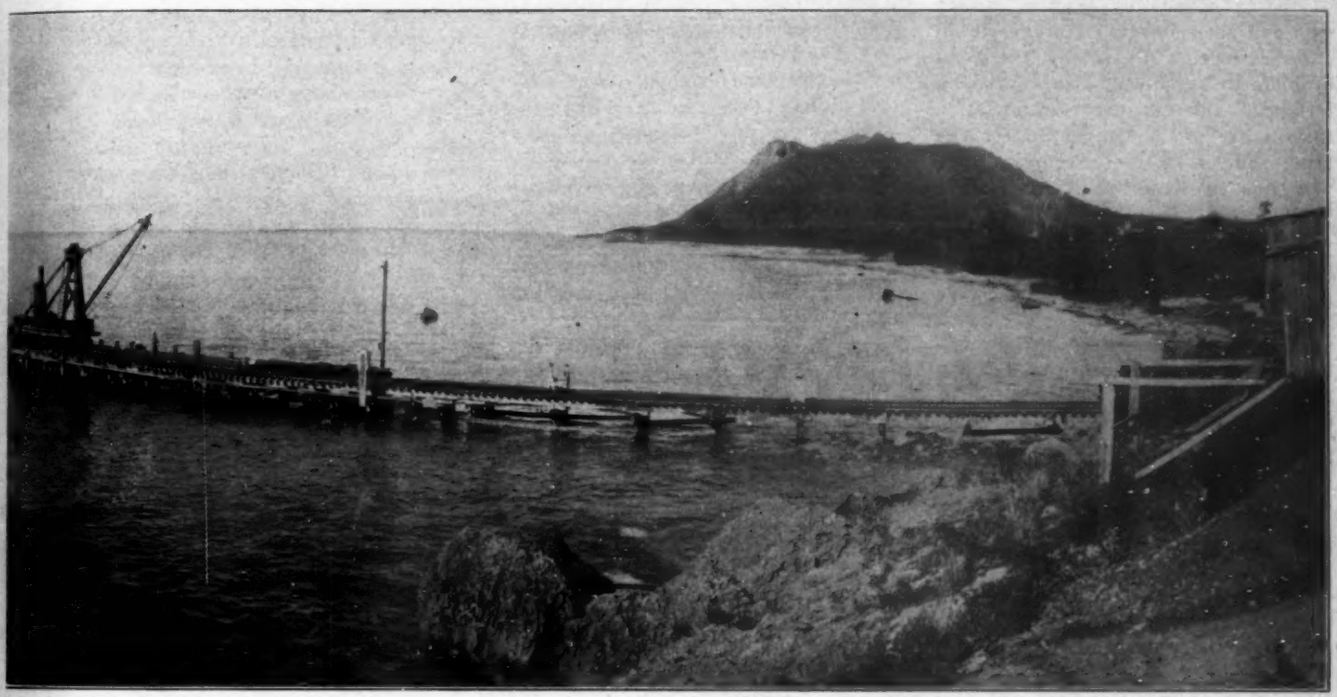


THE SPANISH-AMERICAN IRON CO.'S IRON

single year. This makes the total quantity of ore taken from the Mayari deposits since they were opened in 1910, from 1,750,000 to 2,000,000 tons. In the Daiquiri district, a heavy stock of ore had been piled at the mines from the operations of the previous year and of the first half. This was fully 300,000 tons at the year's start. During the second half, however, these stocks were worked off rapidly.

The shipments of the Ponupo Manganese Co., in 1912, from its Nima Nima property, were about 150,000 tons, and of the Jurugua Iron Co., the subsidiary of the Bethlehem Steel Co., from its mines at Firmeza, in the Santiago district, about 325,000 tons. These outputs reach about the usual annual figures. In 1911, the practically equi-distant from the east coast of the United States and leading north European ports and as a consequence, heavy tonnages of this ore regularly go to German, English and other foreign furnaces and a fixed quota is usually offered to this country. The great activity of the European industry in the year caused consumers there to clamor for larger quantities of Wabana ore. One lot of 40,000 tons was taken by a German consumer in the year at the highest price ever paid for Newfoundland ore in that country. Offers were made by European buyers to absorb any unsold portions of the quota allotted to the United States for 1913 delivery. Eastern furnaces, however, contracted for the full offerings of about 225,000 tons, for next year's shipment, which foreign consumers absorbed all the offerings.

One trans-Atlantic ore, the movement of which has been maintained, and in fact, increased, during the past year is that from Swedish Lapland. The imports of this ore in 1912 were about 325,000 tons, compared with 219,238 tons in 1911, and 259,911 tons in 1910. The principal reason for this gain was the increased tonnage called for under the long-term contract of the Bethlehem Steel Co. with the Kirunavaara mine, the second year of the term of which has just been ended. About 275,000 tons was received under this contract in 1912. In 1913, the tonnage increases to 300,000 tons, and reaches a maximum of 350,000 tons in 1914, which continues until the expiration, Jan. 1, 1920. The Reading Iron Co. also received regular supplies of Swedish ore in the year. None of this ore was offered in the open market in the east during 1912, owing to the heavy demand for it for European consumption.



ORE SHIPPING PIER AT DAQUIRI, CUBA

Jurugua Iron Co. shipped 352,805 tons; in 1910, 296,448, and in 1909, the highest record of 389,926 tons.

The effect of the strong demand for ores for the European market was also shown in the case of the shipments of Wabana, Newfoundland, ore. These in the year reached about 170,000 tons, compared with 174,853 tons in 1911 and 214,706 tons in 1910. The location of these deposits with respect to the eastern Pennsylvaina market is practically as favorable as that of Cuba and the heavy regular movement of ore from these mines, both to the United States and to Europe, enables the operators to secure satisfactory freight accommodations through time charters. The location of the Wabana deposits, however, is compares with about 185,000 tons taken in 1912. Wabana ore sold for 1913 delivery at 7¼ cents per unit, f. o. b. tidewater, which was ¼ of a cent advance, or about 15 cents a ton over the price ruling for the year just past.

The imports from Canada were about 90,000 tons, most of which was Bathhurst, Nova Scotia, ore. This ore sold in the year at about 7 cents per unit, f. o. b. tidewater, but for 1913 delivery the price was advanced to 7¼ cents per unit. An increased movement of this ore was indicated for next year, since about 60,000 tons of this material was under contract at the year's close. Some tonnage of Moose Mountain ore was imported. No Annapolis, New Brunswick, ore was offered to eastern buyers this year, as

South America Looming Up

South American deposits continue to appear in prospective as important future bases of ore supply for the United States. Already some active development work with the eastern market in view has been carried forward, particularly those along the Orinoco river, in Venezuela, which shipped some tonnage to eastern Pennsylvania in the year. According to trustworthy reports and to the

opinions of leading steel makers who have conducted some practical investigations, there are extremely large deposits of ore in different South American republics awaiting active development. The opening of the Panama canal and the establishment of improved steamship facilities, especially with the western coast of South America, are expected to accelerate the shaping of plans for converting the mineral resources of the western republics into merchantable material. In the republic of Chili, exploration work has shown the presence of a large body of a hard hematite ore, containing from 66 to 68 per cent in metallic iron. In quality, it ranges from a Bessemer to a low phosphorus grade. Some attention is now being given to the commercial possibilities of these deposits by leading eastern iron and steel makers. Here, as in all cases of foreign ore supply, the great problem to be solved is the providing of cheap and efficient transportation for the ore to the United States. The establishment by the consumers of a new line of steamships to transport the ore, as has been suggested, involves a large investment. It remains to be seen whether the expected expanse of shipping facilities between the west coast of South America and the Atlantic seaboard of the United States, arising from the Panama canal, will provide a solution to the transportation problem in the event the Chilean ore bodies prove of the extent promised for them. In Brazil, also, some preliminary exploration has been done by American capital looking toward the eventual utilization of the iron ore resources there, which are also large.

The most active South American development during the past year has been conducted at Imataca in the Orinoco river district of Venezuela by the Canadian-Venezuelan Ore Co., Ltd., a company organized with Canadian capital and headed by F. P. Jones, of Montreal. This company has obtained important grants from the Venezuelan government and has revived the old workings at Imataca, located about 75 miles inland from the mouth of the river. In the year, the company shipped about 10,000 tons of this ore to the United States, which represented largely the mined ore left on the property by those who had previously operated it. The Venezuelan ore is of a high grade Bessemer quality. It runs about 65 to 68 per cent in iron and 0.016 to 0.040 in phosphorus. Silica runs about 1.5 to 3 per cent. This ore sold in small lots for blast furnace use in the eastern market at 8 cents per unit, f. o. b. cars Philadelphia, while some for fix purposes in steel-working operations was taken at 9 cents per unit, Philadelphia. A few lots of the fix ore went to the Pittsburgh district for trial. The Canadian-Venezuelan Ore Co., Ltd., is now preparing to actively develop the property and to that end is installing a new crusher and other improved mining facilities and announces that it eventually hopes to ship a very heavy tonnage from the deposits. One obstacle that has always stood in the way of the development of the Orinoco river iron ore deposits has been the bar in the mouth of the river which greatly limited the size of the loaded vessel that could be floated over it to the Atlantic ocean. In the year, the largest cargoes brought out have been about 1,000 tons. It is now claimed that there is a greater depth of water over the bar than had originally been supposed and that furthermore, the difficulty can be circumvented by the construction of vessels of the flat bottom type, so that cargoes of at least 3,000 tons may be floated. Interests from the United States also hold mining rights at Piocoa, in the Orinoco river territory, but nothing has yet been done towards the development of these.

Local Workings Active

An awakened interest is apparent in the development of the local ore deposits of New York and New Jersey and of other districts tributary to eastern Pennsylvania, which is being brought about by the unceasing effort of eastern furnaces to more fully fortify themselves upon their raw material supplies. In the year past, a number of new and somewhat pretentious plans have been formed or advanced for the further development of mining facilities and of the treatment of these ores. The Empire Steel & Iron Co. is expending a large sum in improving the plant and enlarging the output of its Mt. Hope property, located three miles from Wharton, N. J. A new central hoisting shaft for the entire property, which will have a capacity of about 1,000 tons a day, electric hoisting engines, electric pump and other modern mining equipment, are being installed and the present mill will be enlarged to handle the increased output. The shrinkage system of mining has been adopted for this property. This method is also now being employed at the Washington mine at Oxford, N. J., by the same company. The Washington mine is being steadily developed. Splendid results are being obtained from a new magnetic separating plant and a Wedge kiln for the desulphurization of the fine ores, which were installed some time ago. This installation enables the fine ore to be roasted separately from the coarse, the treatment of the latter being continued in kilns of the Gjier type. The recent improvements made at this mine have increased its output of crude ore to about 14,000 or 15,000 monthly, and of treated ore to 9,000 tons monthly. The power plant of the Washington mine is now being operated on waste blast furnace gas from the Oxford furnace.

Concentrating operations were started early in January at a new mill on the properties of the Benson Mines Iron Ore Co., located at Benson Mines, St. Lawrence county, N. Y. This operation has not been active during the past several years. A new concentrating mill installed has a capacity of about 400 tons of treated ore daily. The ore is of a Bessemer quality, running about 30 per cent in iron natural and the concentrates analyze approximately 64 per cent in iron, 7 per cent in silica and 0.04 per cent in phosphorus. A large body of ore is in sight and the vein shows a width of upwards of 150 feet. Mining is being done by the open pit and steam shovel method. Deep holes are drilled along the face of the rock and the material is dislodged by dynamite. It is then picked up by steam shovels and passed to the primary rolls of the Edison type, which are capable of handling single pieces up to 6 tons in weight. A water power has been developed at a point on the Oswegatchie river, 4½ miles from the ore deposit. This stream has a head of between 250 and 300 feet, which it is estimated may ultimately develop about 8,000 horsepower. At present only about 50 feet of the head is being utilized for furnishing power for the operations of the full mining plant. The Benson mine properties have been active on various occasions since they were originally opened in the early 90's, but the present development is being pushed more vigorously than ever before.

The Pequest Iron Co. has installed a new drying plant of the Coles type at its mine at Buttzville, N. J., for preparation of the ore before concentration. This plant consists of two mechanical dryers, each of which has a capacity of 20 tons an hour for drying ore of 22 per cent moisture down to the perfect stage or below 1 per cent. The dried ore is then passed through magnetic separators. The

company has a large tonnage of mined ore awaiting treatment.

Croton Magnetite Ore Deposits

Arrangements are being made by a newly-organized company, the Croton Magnetite Mines Co., to reopen the Croton magnetite iron ore deposits located between the villages of Brewster and Croton, N. Y. These mines have gained considerable prominence through the years of litigation between the owners and the City of New York, arising from the sequestering of part of the property for public water reservoir construction. This litigation was settled about a year ago and it is now proposed to actively re-open the mines for the first time since 1883. A concentrating plant for the magnetic separation of the ore with a capacity of about 150,000 tons annually, will be installed. This will entail a crude ore output of about 300,000 tons annually, as the rock natural runs about 37 per cent in iron and will be beneficiated to about 64 per cent. After concentration, the material will be passed through a sintering process for the elimination of sulphur. The present workings of the mine consist of two shafts and a tunnel 1,150 feet in length. Levels have been opened at depths of 80 to 150 feet below the surface.

Witherbee, Sherman & Co., Inc., throughout the year have kept several diamond drills at work on a large tract which they hold in the Ausable district in Clinton county, N. Y. This exploration work has shown the presence of a large body of medium grade ore which is very suitable for concentration. The ore is largely of a Bessemer quality, though some of it is of a low phosphorus grade. Nothing has yet been done with the commercial development of this property, but as eastern industrial conditions justify, it is very likely that an extensive working will be established here. Little work was carried on during the year at the Wharton, N. J., mines of the Wharton Steel Co., as the entire blast furnace plant of the company remained cold throughout the year.

Port Henry Less Productive

Operations in the Port Henry district in New York state, the principal domestic development in the east, were not as productive during the past year as for the several years prior, owing to the difficulty of obtaining full forces of mine labor. The shipments during the year of Witherbee, Sherman & Co., Inc., the Port Henry Iron Ore Co. and the Cheever Iron Co. were approximately 675,000 to 700,000 tons, compared with 750,000 tons in 1911, and 850,000 tons in 1910. The crude ore output of the region in 1912 was about 800,000 tons, compared with 850,000 tons in 1911 and approximately 1,000,000 tons in 1910. Witherbee, Sherman & Co., Inc., completed and put in operation in November their new No. 4 concentrating mill at Mineville, N. Y., which treats the Barton Hill low phosphorus ore. The new mill is handling about 1,000 tons of crude ore daily and has a capacity considerably in excess of this figure. The concentrates produced are of a high grade Bessemer quality, running about 66 per cent in iron and 0.02 per cent in phosphorus on the average.

Opening Texas Deposits

A comparatively new source of supply which it is believed may prove of value to eastern Pennsylvania iron makers is being provided in the development work that is being carried forward in eastern Texas. The principal activity along this line has been conducted by the East Texas Brown Ore Development Co., which now has its mining plant on such an advanced scale and has so rounded out the transportation facilities of the property that shipments are expected to be inaugurated early in the new year. A new railroad has been built, connecting the ore properties with Port Bolivar and affording thereby an outlet to tidewater. From that point the ore is expected to be transported by water to Philadelphia or other ports convenient to the eastern Pennsylvania district. It is claimed for the Texas deposits that the ore body is very extensive. It consists of a brown hematite non-Bessemer ore which readily yields to smelting. This ore runs about 52 per cent in iron natural, about 0.09 per cent in phosphorus, with a trace of sulphur. The plant of the East Texas Brown Ore Development Co., it is expected when in operation, will have a capacity of about 1,000 tons daily. About 35 miles from the East Texas properties, a second development is being carried on with an ore body about half the size of the former. It is understood that one eastern ore firm has already arranged to offer a block of 50,000 tons of Texas ore to the eastern trade. It is probable that this ore will not be offered below 8 cents per unit of iron tidewater.

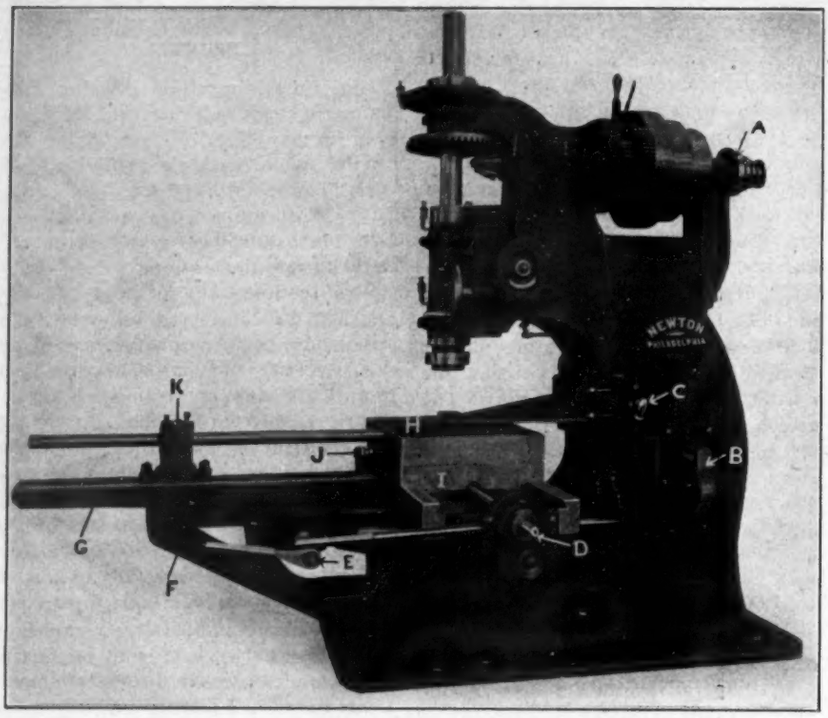
Annual Meeting of Efficiency Engineers

The annual meeting of the Efficiency Society will be held Monday and Tuesday, Jan. 27 and 28, at the Engineering Society's building, 29 West Thirty-ninth street, New York City. The subjects to be discussed will foreshadow the work of the society during the ensuing year.

Five sections will be held and the topics to be considered follow: Symposium on organization; discussion on the necessity of charts of organization; discussion on democracy in industry and securing the consent of the governed; symposium on efficiency in the government organization, national, state and municipal; discussion on the readjustment of the governmental departments; symposium on industrial relations; discussion of the relations between employer, employe and the community; symposium on industrial hygiene and safeguards against occupational disease and accident and a symposium on safety, including safety in machine and land transportation, crowded buildings, safety from city conflagrations, forest fires, in mines, dam-protected districts and from freshet floods. An illustrated lecture also will be given demonstrating the efficiency obtained by conserving the human element in industry.

New Plant of the Johns-Manville Co.

The new plant of the H. W. Johns-Manville Co., Manville, N. J., recently has been completed and is now in operation. It consists of nine buildings as follows: Textile and packing, rubber plant, electrical specialties and printing department, pipe coverings, paper mill, magnesia, roofing, mastic and waterproofing, roof coatings, power plant and pump house. The buildings have an average length of 1,000 feet each, and form independent units of the entire plant. The total combined floor area is about 1,000,000 square feet. The power plant is equipped with turbo-generators and six high-pressure, water-tube boilers having an aggregate capacity of 5,000 horsepower. The power and lighting cables are led underground through fiber conduits, thereby eliminating trouble resulting from the support of cables overhead on poles. The plant is located on a tract of 320 acres in a town formerly known as Findern, the name of which has been changed to Manville. Approximately 3,000 men will be employed, making the total employes of this company 7,000.



MOTOR-DRIVEN LATHE FOR TURNING PROJECTILES

Lathe for Turning Projectiles

A special lathe for turning projectiles, built by the Niles-Bement-Pond Co., has been designed for individual motor drive, the motor being placed on the lathe head, thereby economizing floor space and eliminating the possibility of injury to employes from coming into contact with the motor or gears. This lathe has a wide speed range and a high spindle speed is necessary when finishing the points of projectiles. As shown in the accompanying illustration, the control handle is at the extreme right of the tool apron and is conveniently located. The lathe is driven by a Westinghouse, 20-horsepower, machine tool motor, which operates at from 400 to 1,300 revolutions per minute. The commutating poles insure good commutation at all loads within its capacity. With the liberal speed adjustment of the motor, in combination with the gear changing device operated by the levers at the left end of the tool, the wide adjustments required in turning projectiles are made readily available.

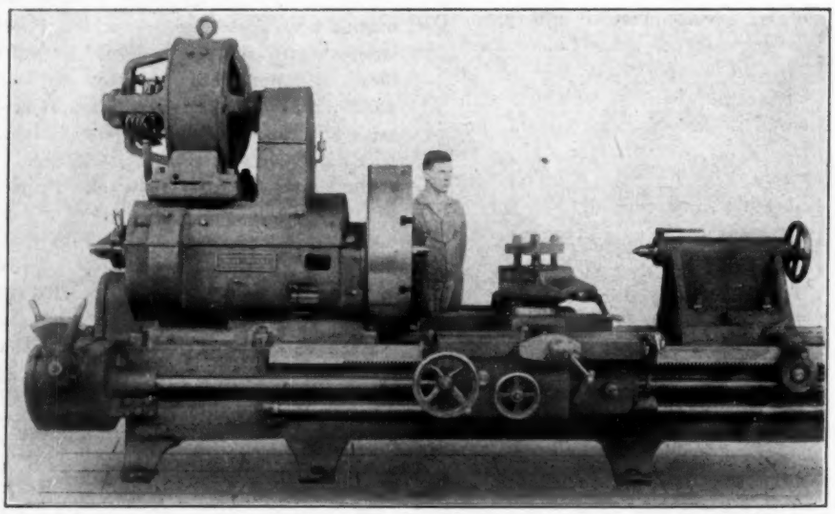
The first use of natural gas in manufacturing in America is said to have occurred in boiling salt in the Kanawha valley. In this region, William Tompkins, while boring for salt in 1841, struck a large and steady flow of gas, strong enough to force the salt water into a reservoir from which it could be distributed to the furnace pans. He made a gas holder from a hogshead placed over the salt water reservoir, into which he conveyed the escaping water and gas. The water fell into the reservoir and the gas was conveyed through a pipe to the furnace and produced an intense heat under the row of kettles.

Locomotive Link Milling Machine

The Newton Machine Tool Works, Inc., Philadelphia, has equipped its No. 2, vertical milling machine for milling locomotive links and it also can be used for straight milling. To effect this combination, the lower cutter arbor support is hinged on one side of the machine to permit of swinging it out of the way when not in use.

The spindle of the machine has a double-tapered bearing, the large end of which is approximately 4 inches in diameter. The distance from the center of the spindle to the upright is 16½ inches and the maximum distance from the end of the spindle to the top of the work table is 14 inches. The top table, to which the links are clamped, is 22 x 31 inches and the saddle, on which this table swivels, has a travel of 24 inches. The bottom table has a capacity to permit of machining links with radii from 18 to 60 inches.

The spindle is operated direct by a sleeve bevel gear driven by three-step cone pulley or through the back gears, shown in the accompanying illustration. The spindle revolves in bronze-bushed bearings and the spindle saddle is provided with square lock bearings on the upright. Power for the feed is transmitted from cone, *A*, to a similar cone on the opposite side of the machine and is delivered through the frame to the point of the gears at *B;* the traverse of the tables is controlled by the tumbler gear lever, *C;* the cross movement is clutched at *D* and the in and out adjustment of the cross table is controlled by the ratchet lever *E;* the extension knee, *F*, supports the radius arm, *G;* the clamping plate, *H*, is held to the saddle, *I*, by a broad face, dove-tail clamp, which has a pin bearing in the saddle which permits of the swivel motion; the adjustment of the top table, *H*, to this clamp, is controlled by the taper shoe, *J*. When operating the machine, the links are placed in position, the bottom cross saddle is adjusted for the required depth of cut and the swivel radius block, *K*, is set to the required radius. This machine weighs 13,000 pounds.



NEWTON LOCOMOTIVE LINK MILLING MACHINE

Electric Furnace for Making Steel for Castings

The First Roechling-Rodenhauser Furnace Installation in the United States Made at an Eastern Pennsylvania Foundry

By C H Vom Baur

For producing steel for castings, the Crucible Steel Casting Co., Lansdowne, Pa., recently placed in operation a Roechling-Rodenhauser electric refining furnace. This is the first steel-making medium of this type installed in the United States, although 17 are in operation in Europe. Contracts are now being filled for four additional furnaces of the Roechling-Rodenhauser type to be installed in steel plants. The furnace operated by the Crucible Steel Casting Co. has a capacity of two gross tons, the power being furnished by a 300-kilowatt, 25-cycle, single-phase, 480-volt generator, which is direct-driven by a two-cylinder De La Vergne oil engine. This prime mover was installed, as it can be operated not only by the heavy Mexican oils, 16 to 19 degrees Baume, but also by the less expensive water gas tar. When operating at capacity and on single turn of 12 hours, the cost of the electricity does not exceed 0.7 cents per kilowatt-hour, which is approximately one-half the rate quoted for current by the local lighting company.

The electric refining furnace is located at a distance of 200 feet from the generator and to permit of regulating the heat within sight of and reasonably near the furnace, a remote-control switchboard was installed about 30 feet in front of and slightly higher than the spout. By merely pressing a button, the furnace temperature may be regulated as desired and on the operating platform the controller for tilting the furnace also is located. Electric measuring instruments at all times indicate the temperature of the furnace. The blower motor, which supplies air for cooling the furnace transformer coils, consumes 4.95 kilowatts.

The first heat was made in this furnace Nov. 18, 1912. Since this medium was placed in operation, a second lining has been required, which was baked more carefully than the first, this operation having consumed about 24 hours. The bottom consists of magnesite and tar tamped in with pneumatic rammers, while the roof is made of magnesite brick and lasts indefinitely. A plan view of this furnace is shown in Fig. 1. The two legs of the iron core of the transformer are shown at *H*, both legs being surrounded by primary coils, *A*, which are connected with the alternating current generator. By the action of the currents in the primary coils, secondary currents are induced in the two closed circuits formed by the bath. The primary coils are arranged so that the induced currents in the common part of the two circuits, that is, between the legs, *H*, of the iron core, take the same direction.

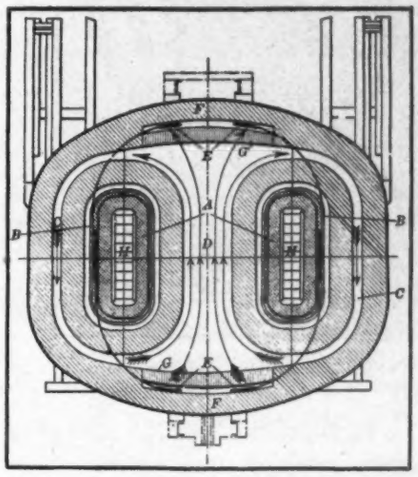


FIG. 1—PLAN VIEW OF ROECHLING-RODENHAUSER ELECTRIC INDUCDUCTION FURNACE

The difference between this furnace and the ordinary induction type consists in the use of extra secondary coils, *B*, which surround the primary coils, *A*. From these secondary coils the currents are conducted to metallic pole plates covered by an electrically-conducting mixture of magnesite and tar, *G*, which forms the bottom and side lining of the furnace. The currents from these secondaries then pass from the pole plates, *E*, through the lining, *G*, and through the main hearth, *D*, of the furnace. The channels, *C*, merely act as conductors for the secondary currents induced in the bath and have no part in the metallurgical operations. In the main hearth, *D*, are the currents from the channels, *C*, and also from the extra secondaries, *B*. If it is assumed that each of the

FIG. 2—TOP VIEW OF TWO-TON FURNACE INSTALLED BY CRUCIBLE STEEL CASTING CO.

FIG. 3—POURING SIDE OF TWO-TON, ELECTRIC INDUCTION FURNACE

channels furnishes one-fourth of the current passing through the main hearth, *D*, and that, consequently, half of the current is received from the extra secondaries, and that the resistance of the

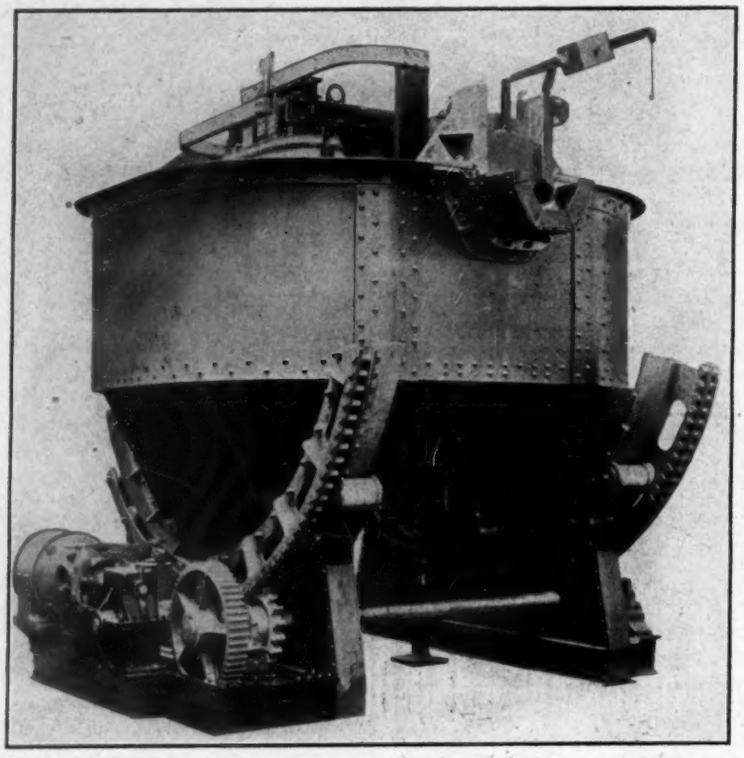


FIG. 4—FRONT VIEW OF TWO-TON ELECTRIC REFINING FURNACE, SHOWING TILTING MECHANISM

main hearth is one-half of that in each of the channels, *C*, then the current in the main hearth, after adding the extra secondaries, which is double that directly induced, will be four times that generated by the induced current alone.

Energy Transformed into Heat

The ratio between the double energy transformed into heat in the main hearth and channels, after and before the introduction of the extra secondaries, then will be in the ratio of 2:5. The effect of this is a considerable increase in the power factor. If the current from the secondary did not increase the self-induction and the power factor of the furnace when operating only with the currents directly induced in the bath were, for example, 0.50, the introduction of the extra secondaries would result in an increase of the power factor to 0.75. Another advantage derived from this arrangement is that the magnetic leakage field surrounding the primary coils, which formerly had only the effect of checking the primary current and decreasing the power factor, is utilized for inducing currents in the extra secondaries. The result is that the main hearth can be made larger in cross-section and notwithstanding this, a good power factor can be obtained even in large furnaces without the use of such low frequencies as was necessary with the original single ring induction furnaces.

The amount of extra power that can be delivered to the furnace by the extra coils, of course, is limited, because increased power means increased current and consequently increased current density in that part of the lining that conducts the current to the steel. This current density must not be increased too greatly, as the heat evolved when the current passes through the lining increases as the square of the current and too high a density, therefore, would result in the destruction of that part of the bottom through which the current passes. For this reason a combination of induced current and currents taken from the extra coils must be used. The furnace, when first heated, allows the pole plate circuit to feed about 10 per cent of the total energy into the furnace and later this is increased to 26 per cent.

Cold Metal Charged

At the present time, cold metal is charged into the electric refining furnace at Lansdowne, Pa., where it is melted and converted into steel. Ample space has been provided, however, for the installation of a preliminary melting furnace, which will be added when the capacity of the electric furnace, with cold charging on single turn, has been reached. This furnace has a capacity of 1,200 tons annually when charged with cold metal and 2,850 tons when charged with hot metal. This output is based on operations of single turns of 12 hours. When the furnace was placed in operation, open-hearth melters were employed, who made steel successfully from the start in view of the fact that their attention was not distracted by maintaining the necessary temperature, spot-heating of the furnace, frozen corners, etc.

Power Consumption

The power consumption of the fourth heat is graphically illustrated in Fig. 5. The crosses on the lower horizontal line indicate the scrap additions, consisting in each case of approximately 100 pounds. The average power required was 240 kilowatts throughout the entire heat in place of 280 or 300, as it was advisable not to operate the engine at its capacity at that time. About 1½ tons of steel were melted and poured in 4 hours and 50 minutes at a consumption of 844 kilowatt-hours per ton.

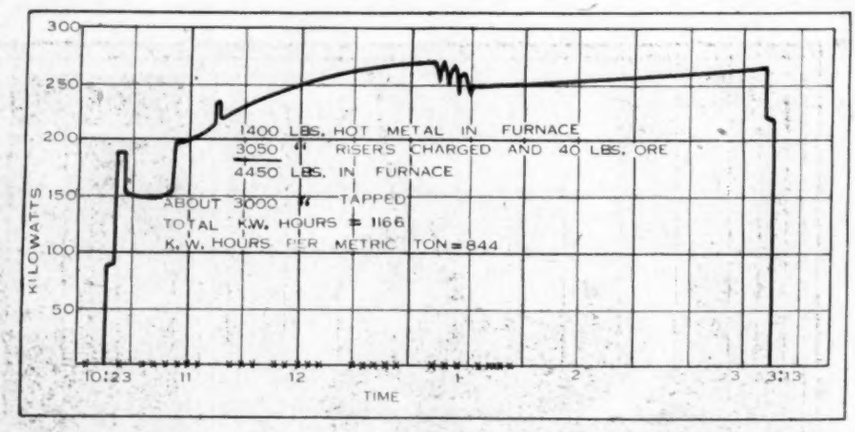


FIG. 5—CURVE SHOWING POWER CONSUMPTION DURING FOURTH HEAT OF FURNACE

Forty pounds of ore were charged, as the carbon was found to be too high and the final additions consisted of 18

pounds of ferro-manganese, 18 pounds of ferro-silicon and 7 ounces of aluminum. A lime slag covered the bath throughout the heat. As shown in Fig. 5, the heat was started at 10:23 a. m. and the steel was tapped at 3:13 p. m. When the furnace was charged, it contained 1,400 pounds of hot metal and the charge consisted of 3,050 pounds of risers and 40 pounds of ore. The metal in the furnace aggregated 4,450 pounds and approximately 3,000 pounds of steel were tapped. The total power consumption was 1,166 kilowatt-hours. The chemical composition of the steel follows: Carbon, 0.30 per cent; phosphorus, 0.03 per cent; sulphur, 0.03 per cent; silicon, 0.30 per cent, and manganese, 0.49 per cent.

Temperature of Metal

When the metal was tapped, it was sufficiently hot to cut a 1¼-inch steel rod in 15 seconds. When pouring, some of the metal was transferred from the ladle to crucibles and then to the molds. The metal was quiet and the castings were without blow-holes. Sixty per cent of the heat consisted of good castings, which were comparatively small, and there were absolutely no wasters.

Melting Scrap

An interesting feature of the electric induction furnace, when melting scrap, is that the time required for a heat is reduced as the electric energy at the furnace terminals is increased, that is, the reduced melting time increases the attainable efficiency of the furnace. During a test of a 1½-ton Kjellin furnace, a mixture of pig iron and scrap was melted with a power consumption of 966 kilowatt-hours per ton, the melting period having required six hours. Throughout this period, the current at the terminals was 166 kilowatts, whereas 800 kilowatt-hours only were consumed during a four-hour melting period with 200 kilowatts at the furnace terminals. This gives a total efficiency of 50 per cent for the six-hour melting period and 60 per cent for the four-hour melt. Fig. 6 graphically shows how increased efficiency is obtained with decreased melting time. The test cited also proves the following formula:

$$\text{Tons melted} = \frac{\text{Kilowatts at furnace} \times \text{hours}}{\text{Kilowatt-hours per ton.}}$$

The power at the furnace should be continued at a uniform rate. In the heat under discussion, utilizing a 2-ton furnace, a mixture of 1.38 tons, consisting of scrap, was melted and refined with a power consumption of 844 kilowatt-hours per ton, in 4 hours and 50 minutes. Reduced to the formula previously quoted, this operation can be indicated as follows:

$$1.38 \text{ tons} = \frac{241 \text{ kilowatts} \times 4.83 \text{ hours}}{844 \text{ kilowatt-hours per ton.}}$$

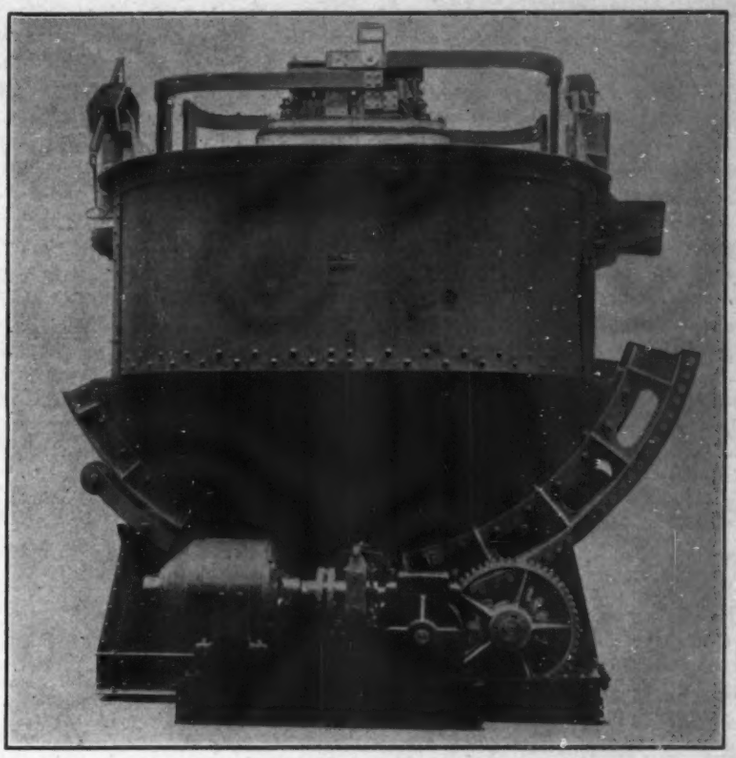


FIG. 7—SIDE VIEW OF TWO-TON, ELECTRIC REFINING INDUCTION FURNACE

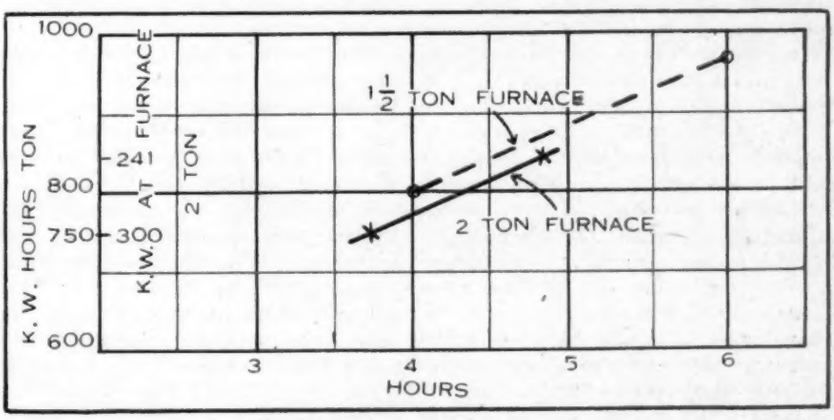


FIG. 6—CURVE SHOWING INCREASED EFFICIENCY OF ELECTRIC FURNACE WITH DECREASED MELTING TIME

The operation of the 2-ton furnace, designed to produce 1.5 tons in 3¾ hours with 300 kilowatts at the furnace terminals, can be designated as follows:

$$1.5 \text{ tons} = \frac{300 \times 3.75}{750}$$

When the preliminary melting furnace is installed, the output will be increased considerably, as 275 kilowatt-hours per ton will be sufficient to refine and to degasify ordinary mixtures of pig iron and scrap. The output then will be increased to 10 tons in 12 hours. The cost of power and bottom repairs per ton of steel will be decreased.

The cost of making steel in the furnace operated by the Crucible Steel Casting Co. follows:

Raw material (scrap)	$14.50	
Oxidation loss about 2 per cent	.29	
	$14.79	$14.79
Current, 844 kilowatt-hours at 0.7 cent	$5.91	
Fluxes	.76	
Ore	.05	
Labor	1.50	
Tools, repairs and bottom	.76	
Cooling air for transformers	.12	
Conversion cost	$9.10	$9.10
Interest, 5 per cent; depreciation, 10 per cent per ton		1.50
Cost of one gross ton electric steel ready to pour		$25.39

When large amounts of scrap are added per charge thereby reducing the

radiating losses due to the opening of the charging doors, and when the furnace is operating on 280 to 300 kilowatts instead of 250, the time for melting and deoxidizing will be reduced to about 750 kilowatt-hours per ton, which approximates European practice for similar work in this size and type of furnace, exclusive of the heat required for baking in the bottom and heating at night, when operating single turn. It required approximately 125 to 130 kilowatts to maintain the full charge continuously at temperature. According to various calculations and tests, the amount of theoretical electrical energy necessary for melting a 1-gross ton mixture, consisting of two-thirds scrap and one-third pig iron, is 489 kilowatt-hours. This also has been estimated at 430 kilowatt-hours for mild steel when tapping at 1,650 degrees Cent. The total electrical and thermal efficiency, based on the observed radiating losses with this furnace is

$$100 - \frac{130 \times 100}{300} = 56.6 \text{ per cent}$$

The efficiency of 56.6 per cent fairly represents the conditions of the fourth heat in this furnace. The metal was sufficiently hot to melt a 1¼-inch rod in 15 seconds, indicating approximately a temperature somewhat slightly above 1,650 degrees Cent. If 430 kilowatt-hours per ton for melting is taken as the correct figure, 50 kilowatt-hours should be added for the additional superheating, estimated between 100 and 125 degrees Cent. As it requires about 40 kilowatt-hours to raise the temperature 150 degrees Cent., therefore

$$\frac{480}{844} = \text{approximately 56 per cent}$$

Oxidizing the Charges

The electric furnace charges can be oxidized by the addition of ferro-manganese, ferro-silicon and similar alloys. If a low manganese steel is required, the mixture should be deoxidized with ferro-silicon and immediately after pouring the charge into the furnace, the first addition of ferro-silicon should be made and the bath should be covered with an easily fusible slag to exclude the air. The kind of slag depends upon the furnace lining. If the hearth is basic, a neutral or basic slag is required, and with a neutral or acid hearth the slag should be of greater acidity. A suitable mixture of lime and sand, containing fluorspar, may be used to form a slag. It is only necessary to have sufficient slag to cover the bath. Furnaces of large capacity, which operate with a deep bath, require a lower percentage of slag per ton than those of smaller capacity, which expose a greater surface per ton. The first addition of ferro-silicon is made before the bath is covered with slag to prevent this alloy from being enclosed in the slag. At first the slag turns black, due to the absorption of oxide of iron from the bath. To completely deoxidize the bath, therefore, it is necessary that the bath contain no oxides and that it should be white in color. To effect the complete deoxidization, a suitable reducing agent should be sprinkled on the slag when it has a dark color and a neutral or reducing temperature should be maintained in the furnace. Ferro-silicon, reduced to pea size, is used as the reducing agent, which is added from time to time, in small amounts. If the slag continues to be white, the melter makes tests to ascertain the condition of the steel, and if it does not pour quietly, additions of ferro-silicon are continued until the tests give the desired results. Alloys, such as nickel, manganese, chromium, etc., then are added. No preheating is necessary, as it is impossible for carbides to remain undissolved in the metal, due to the movement of the metal bath in the furnace.

If the steel is to be made of average manganese content, ferro-silicon is added to the bath, after which it is covered with slag. The final deoxidation can then be effected with ferro-manganese or spiegeleisen. The slag will then become dark in color, due to the reaction of the manganese with the oxide of iron forming MnO, which enters the slag.

High Carbon Steel

If the steel is to contain a higher percentage of carbon than the metal charged, the necessary amount of carbon is added to the bath after the first addition of ferro-silicon has been made and before the slag has been formed. A small excess of carbon is added, depending upon the size and physical condition of the carbonizing material, owing to the fact that a part of it is burned when it is charged into the furnace. At this time it is advisable to make a quick color carbon determination to see whether the metal contains the proper percentage of this element. Then follows the slag formation and the further process is similar to that pursued in the production of low manganese steel. At the beginning of the deoxidation period, it is advisable to make an addition of ferro-silicon, even when melting high carbon material. If carbon is added to the bath before the ferro-silicon, a violent action of the metal results and considerable loss of carbon cannot be avoided. For this reason, it is advisable to add only a part of the carbon before the ferro-silicon and after deoxidation, the remainder can be added to obtain the desired carbon content.

When tapping the steel, the slag also is poured into the casting ladle to protect the metal from the air and also to prevent the slag from adhering to the hearth of the furnace, thereby attacking the lining. Owing to the complete deoxidation of electric steel, the addition of aluminum to the metal during the pouring period is unnecessary. If an addition of ferro-manganese for deoxidation already has been made in the converter, open-hearth, etc., an easily fusible basic slag alone has to be made and kept free from oxide after pouring the charge into the electric furnace. This is effected by the addition of ferro-silicon, as previously stated, it being assumed that the steel poured into the furnace already contains the necessary percentage of silicon. However, if this is not the case and before the formation of the slag, a corresponding addition of ferro-silicon should be made. This process also effects a reduction in the sulphur content of the charge.

In the accompanying illustrations, Fig. 2 is a top view of the Roechling-Rodenhauser furnace at the plant of the Crucible Steel Casting Co., Lansdowne, Pa. This view was made while the bottom was being baked and the escaping vapors are from the tar in the bottom mixture. Fig. 3 is another view of this furnace taken from the remote control switchboard. The furnace is in a pit and is covered partly by a removable platform. Fig. 4 is another view of the furnace as erected, showing the tilting mechanism, and Fig. 5 is a side view.

This furnace was installed by the American Electric Furnace Co., New York City, having been built by the Wellman-Seaver-Morgan Co., Cleveland, while the electric equipment was furnished by the General Electric Co., Schenectady, N. Y.

The Eastern Car Co., New Glasgow, N. S., will build a large car wheel foundry and the contract for all the necessary equipment has been placed with the Whiting Foundry Equipment Co., Harvey, Ill. The plant will be designed on the straight line system with hydraulic hoists commanding each of the molding floors. These hoists are employed for closing the molds, pouring and for delivering the car wheels to buggies that carry them to the pits for annealing.

The Quigley Furnace & Foundry Co. has removed its engineering and general offices to its works at Springfield, Mass. The sales offices of the company are at 50 Church street, New York, and McCormick building, Chicago.

A Canadian Plant for Producing Steel Castings

The Melting Equipment Consists of Open-Hearth Furnaces and a Stock, Oil-Fired Converter

A new foundry for the manufacture of steel castings by both the open-hearth and converter processes recently has been placed in operation at Hamilton, Ont., by the Dominion Steel Castings Co., Ltd. The plant, which has been built on a site of 10 acres, comprises six buildings, including the steel foundry, finishing department, power house, stock room, pattern shop and pattern storage. The buildings are of steel frame and reinforced concrete construction, the windows being provided with steel sash. As shown in Fig. 1, the foundry is 160 feet wide and 300 feet long and is commanded by one 25-ton and two 10-ton cranes. An order has been placed for a four-motor, 30-ton crane, which will be installed in the main bay of the foundry in the near future.

Melting and Core Departments

The melting equipment consists of two oil-fired open-hearth furnaces of 20 tons capacity each. The charging floor extends the full width of the 50-foot melting bay and is built of structural steel. Provision has been made for the installation of a charging machine. For drying the molds, four ovens have been provided, each 15 x 40 feet inside. These ovens are coke-fired from the side and the flues are located so as to insure the uniform distribution of the heat. The core ovens are located in the center of the core room and are served by trucks entering the ovens on tracks which extend through the ovens, practically making the core baking operation continuous. Both in the foundry and in the core room, jar-ramming machines have been installed, as well as other types of labor-saving molding equipment. It will be noted in Fig. 1 that the large molding machines are served by six jib cranes, which deliver the molds to the two bays, which are commanded by overhead cranes. Roller type sand grinding machines are located in one corner of the shop adjacent to the sand bins.

The casting cleaning and finishing department is 60 x 200 feet and is commanded by a 10-ton, overhead electric traveling crane. The cleaning equipment includes cold saws, shapers, emery wheels, etc., as well as an oxy-acetylene cutter for removing sprues and risers. All of the open-hearth steel castings are annealed in three coal-fired furnaces. The annealing furnace for small castings is 4 x 6 feet, while the other two furnaces are of the open-top type, 7 feet square and 5 x 40 feet, respectively. The large furnace is fired at four points on one side, as shown in Fig. 4. This furnace, with its removable roof, is illustrated at *A* and at *B* is a smaller annealing oven, which is fired by the furnace, *C*. A srtaightening press, 20 feet long and 5 feet wide, is being installed, which will be equipped with a motor-driven hydraulic ram for straightening castings after they have been annealed. The sand blast room is 12 feet square and this equipment also includes a sand blast tumbling barrel. Converter steel castings will be cleaned by a sand blast.

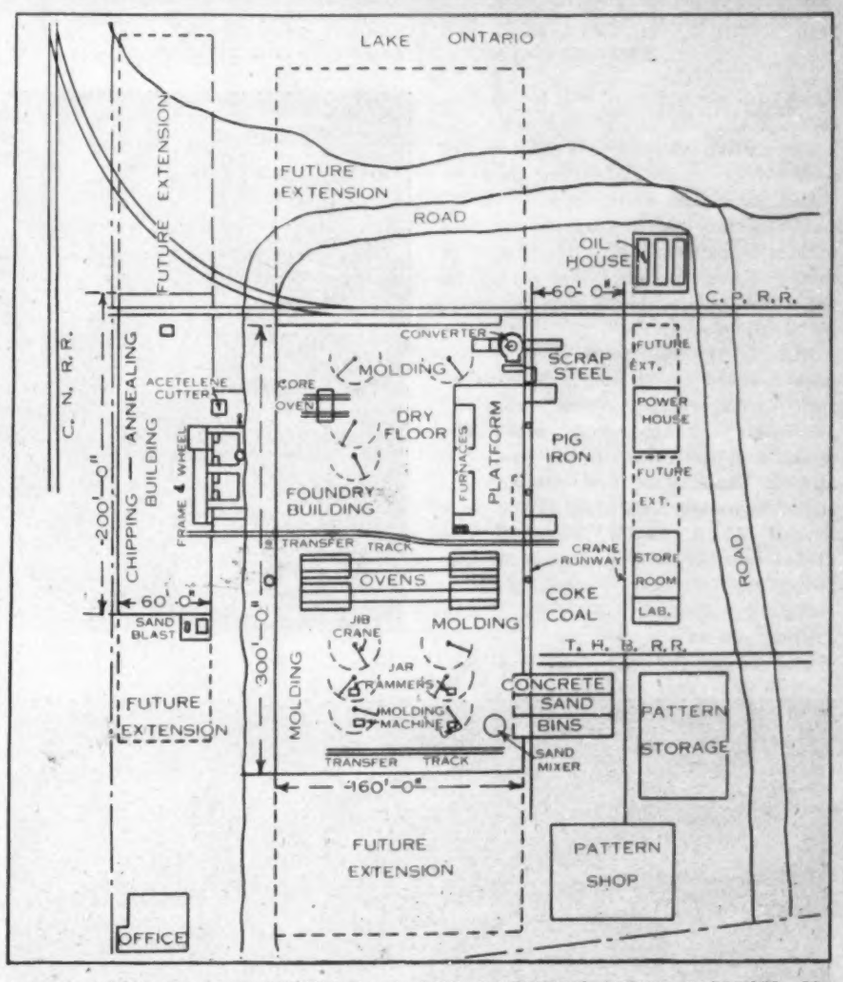


FIG. 1—PLAN OF THE FOUNDRY OF THE DOMINION STEEL CASTINGS CO., LTD., HAMILTON, ONT.

The stock yard for the storage of steel scrap, pig iron and other raw material is served by a 10-ton crane and is provided with an electric magnet for unloading. This crane also delivers the material to the open-hearth charging platform.

The power house is equipped with a 700-cubic foot air compressor, driven by a 100-horsepower motor; a Roots blower, driven by a 100-horsepower motor, which furnishes the blast for the steel converter, and a 150-horsepower motor generator set, which provides direct current for the crane motor and the lifting magnet. Some electric power is purchased, which is received at 2,200 volts and is stepped down to 220 volts for delivery to the motors throughout the shops. Fuel oil is stored in three underground tanks of a capacity of 12,000 gallons each. The oil is pumped into a tank in the power house and constant pressure is maintained by compressed air. A laboratory is nearing completion,

FIG. 2—THE CASTING CLEANING AND FINISHING DEPARTMENT. ONE OF THE ANNEALING OVENS IS SHOW AT THE LEFT

which will be well-equipped for making chemical analyses and physical tests.

The pattern shop is 60 x 80 feet and while it is somewhat larger than required for a shop of this type, nevertheless it is the intention of the company to build patterns for its customers, thereby completing the cycle of making the castings from blue prints, including the patternmaking.

A 2-ton, oil-fired Stock converter has been installed for making light castings, such as superheater return bends for locomotive and automobile parts. This is the first converter of this type operated in Canada, the first American installation having been made at the foundry of W. P. Taylor & Co., Buffalo, as described in the Jan. 2 issue of THE IRON TRADE REVIEW. The plant has an estimated output of 1,200 tons of steel castings per month.

The officers of the Dominion Steel Casting Co., Ltd., follow: C. W. Sherman, president and general manager; Allen Mosher, vice president, and Austin C. Taylor, secretary and treasurer.

A lifting magnet for service under water has been furnished the Vancouver Salvage & Dredging Co., Vancouver, B. C., by the Cutler-Hammer Mfg. Co., Milwaukee. This company is now building a 24-inch magnet with special pole shoes which will handle an 8,000-pound skull cracker, whose weight is 10 times that of the magnet.

Since 1880 the total value of the mineral production of Alaska has been $207,000,000, of which over 90 per cent, or $195,619,776, has been in gold, according to A. H. Brooks, of the United States geological survey.

FIG. 4—FURNACES FOR FIRING THE ANNEALING OVENS

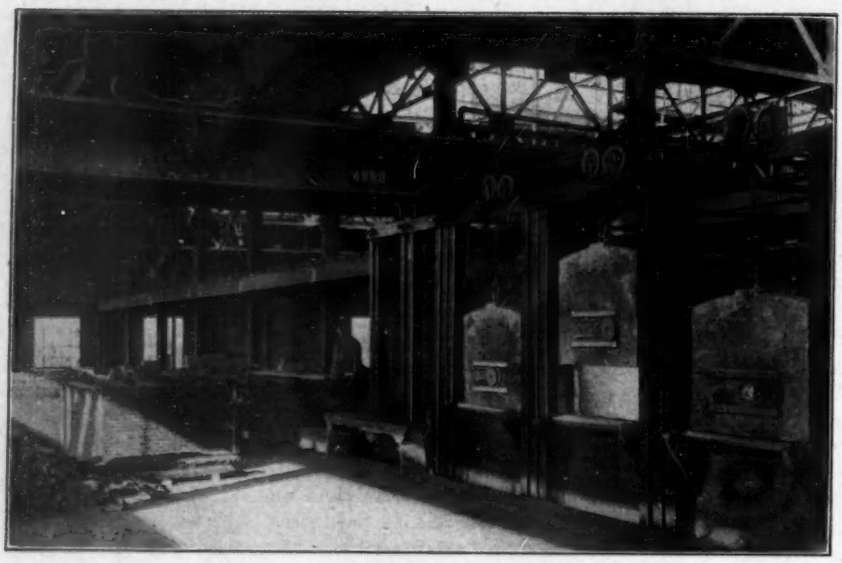


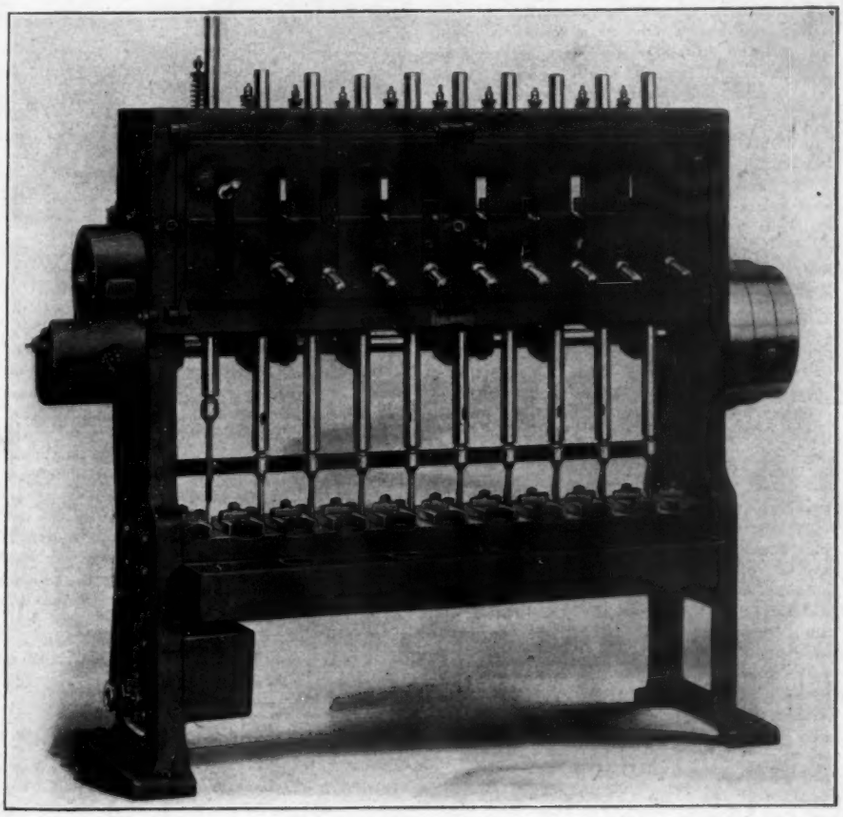
FIG. 3—ONE OF THE OPEN-HEARTH FURNACES, SHOWING A SECTION OF THE CHARGING FLOOR

National Tube Book of Standards

The 1913 edition of the Book of Standards, published by the National Tube Co., Pittsburgh, contains approximately 600 pages, 4 x 6½ inches. It is leather-bound and is printed on Canterbury Bible stock. It is a handbook for engineering use in connection with tubular material, pipe and pipe fittings and contains the following information: Manufacture, sizes, weights, dimensions, test pressures, sections of joints, physical and chemical properties, bursting, collapsing and column strength of all pipe and tubular goods manufactured by the National Tube Co. Sections of this work are devoted to air, gas, water and steam and a glossary is included, which contains definitions of a large number of terms used in the pipe and fitting trade.

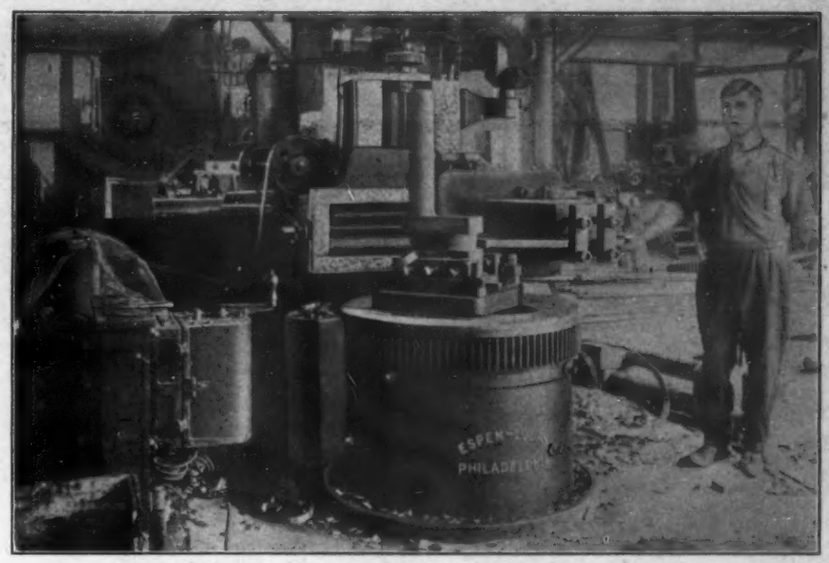
Ten-Spindle Nut Tapping Machine

The National Machinery Co., Tiffin, O., is now building a 1½-inch, 10-spindle, semi-automatic nut-tapping machine, shown in the accompanying illustration. The machine is equipped with a rapid change gear box, which permits changes to be effected in the revolutions of the tapping spindles to correspond to the number of threads on the tap being used. Previously, these changes were made by the removal and substitution of gears. The spindles are raised and lowered by cams and as a result of this automatic spindle movement, the machine sets the pace for operation and the operator is relieved entirely of the work of operating the treadle. The cams which raise and lower the spindles have three steps and by shifting the cam shaft the resting time of the spindles, when raised, can be altered to meet the needs of the operator for feeding. The 10 spindles on this machine are arranged in a space of 69 inches. The machine has a capacity for tapping simultaneously two nuts of comparatively small size on all spindles. The nut guides consist of chilled wedge-shaped plates, held in position by toe clamps. Openings are provided in the nut pans through which the operator can empty the taps into boxes or kegs underneath the tapper. The machine will handle either rough hot-pressed or cold-punched nuts.



TEN-SPINDLE, SEMI-AUTOMATIC, NUT TAPPING MACHINE

The second of two large turbine-driven steamers for the Vancouver, Yokohama and Hong Kong service of the Canadian Pacific Railway Co., and named the Empress of Asia, was launched recently at Glasgow. The two steamers each will have a speed of 18 knots per hour, and, according to reports, will be the fastest on the Pacific.



ESPEN-LUCAS CRANKSHAFT FORMING MACHINE

A Crankshaft Forming Machine

At the plant of the Erie Forge Co., Erie, Pa., a new type of crankshaft forming machine, built by the Espen-Lucas Machine Works, Philadelphia, recently has been installed. The machine is designed for rough-turning and finishing crank pins in multiple and single throw crankshafts, without the use of special jigs, fixtures or counterweights. As shown in the accompanying illustration, the crankshaft is held in a vertical position by the vise on the table at a point next to the pin, thereby avoiding the necessity of balancing the crankshaft by jigs or fixtures. The housing, table and base are gray iron castings, the table being made in one section with a forged steel driving gear forced in place at its periphery. The tool post is equipped with an adjustable tool steel support and is provided with automatic feed and quick adjustment in both directions. The cross rail carrying the tool support is counterbalanced and is equipped with automatic feed in both directions. All driving gears and shafts are made of steel. The machine is arranged for belt drive from a variable speed, 20-horsepower motor and weighs about 27,000 pounds.

The Rateau Steam Regenerator Co., New York City, has been awarded a contract by the Carnegie Steel Co., Pittsburgh, for a steam regenerator plant to be installed at the Homestead works. The regenerators are to regulate the exhaust of a plate mill delivering steam intermittently at the rate of 260,000 pounds an hour and will supply a steady flow of exhaust steam to a mixed pressure turbine having a capacity of 3,750 kilowatts.

Reviews of Catalogs and other Trade Publications

BOLTS AND SCREWS. — The Michigan Bolt & Nut Works, Detroit, has issued a revised price list of its carriage and machine bolts, lag, coach and skein screws.

, Upon the application of Amos Whitney, Geo. C. Kimball has been appointed temporary receiver of the Pratt & Cady Co., Hartford, Conn., and will continue the business. The company makes brass valves and operates brass and iron foundries.

The E. Dietzgen Co., 971 Montana street, Chicago, will erect a steel-frame, brass foundry building, for which new equipment will be required. The plans are being prepared by F. E. Davidson, architect, 53 West Jackson boulevard.

The Forbes Brass Co., Rochester, N. Y., recently incorporated, will place its new plant in operation at an early date. Plumbers' brass goods will be manufactured. The officers are: President, A. F. Stahl; secretary and manager, E. J. Forbes; treasurer, G. R. Coates; superintendent, A. J. Hughes, and metallurgist, Joseph McGrain.

The Scam & Son Mfg. Co., South Norwalk, Conn., which manufactures all kinds of ornamental brass, is planning to erect a new plant in South Norwalk. The company closed its brass foundry about six months ago, and is now having its castings furnished by other shops. The proposed new plant will include brass and gray iron foundries.

CHUCKS.—The Skinner Chuck Co., New Britain, Conn., has issued a 52-page catalog and price list of its various products. This catalog supersedes all previous issues. Illustrations are shown of universal, combination, car wheel, two-jaw, geared scroll, drill, planer and other chucks. Tables of dimensions and other data are included.

ENGINEERS' TORCHES.—The Gem Mfg. Co., Pittsburgh, is making an engineer's brazed seam torch, which is described in an illustrated circular published recently. The body of the torch is constructed of sheet steel, with malleable iron handles, and all seams are brass-brazed. The torches are designed for engineers, machinists and factory use.

HERRINGBONE GEARS.—The Earle Gear & Machine Co., Philadelphia, has published a 12-page catalog, containing illustrations and devoted to herringbone or double helical gears. This type of gear is of particular advantage in heavy work and for the following uses: Motor-driven pumps and air compressors; rolling mill machinery; machine tools; dredges; mine hoists, etc. The Earle company also makes spur and bevel gears.

CRUDE OIL ENGINES.—The Otto Gas Engine Works, Philadelphia, has issued a 16-page, illustrated booklet, devoted to its horizontal crude oil engines, operating on the Diesel principle. The horizontal engine is of the single-acting type, embodying the four-stroke-cycle principle, and it is said that every form of low grade fuel can be used with equal reliability and economy, including crude, gas, solar and tar oil.

BALL BEARINGS.—The Atlas Ball Co., Philadelphia, has sent out a handsome, 20-page, illustrated booklet, describing its method for manufacturing steel balls for ball bearings. The various parts of the process are taken up separately, under such heads as forging, annealing, rough and smooth grinding, heat treatment, hardening and tempering, and the final or precision grinding. Some data on the weight and strength of steel balls are included, together with prices.

LIGHT REFLECTORS.—The National X-Ray Reflector Co., Chicago, has issued a 16-page illustrated booklet devoted to efficiency in the reflection of light. The X-Ray reflectors are said to meet the requirements of economy and efficiency, both from the standpoint of first cost and maintenance. They are made of corrugated glass, silver-plated on the outside and protected by special enameling that preserves the high reflecting qualities.

HOSE COUPLINGS.—The Thos. H. Dallett Co., Philadelphia, has issued an 8-page, illustrated bulletin, devoted to its "Quick Action" hose couplings. This coupling is made of a hard bronze composition, without projecting parts to catch when the hose is trailed along the ground. The action of the device is simple and to connect the two parts, the latter are pressed together and are given a one-eighth turn, locking the ring springs into place. When the connection is to be broken, the locking ring is pressed back, is given a one-eighth turn in either direction and the two ends will spring apart.

CENTRIFUGAL PUMPS.—The Platt Iron Works Co., Dayton, O., has issued a 56-page illustrated booklet describing its various types of centrifugal pumps. These include both single and double suction impeller pumps; single, three and four-stage centrifugal pumps, and four-stage turbine pumps. General data required for estimates are also given. A number of tables contain information regarding normal speeds and capacities for different heads, and instructions are given for erecting and starting centrifugal pumps. The company also makes a line of smaller pumps, water wheels, air compressors, feed water heaters, etc.

HYDRAULIC ACCUMULATORS. — The Watson-Stillman Co., 50 Church street, New York City, has recently published a 56-page well-illustrated catalog, showing its line of hydraulic accumulators and fittings. The company's printed matter consists at present of more than 900 illustrated sheets, and this booklet, containing selected sheets from the above, is one of a number of sub-divided catalogs which are issued for convenience. Among the machines shown are accumulators, intensifiers, by-pass valves; release, checking and governing valves, shock alleviators, testing apparatus, hydraulic punches, benders, presses, jacks, throttle valves, etc.

BLUE-PRINTING SUPPLIES. — The C. F. Pease Co., 166 West Adams street, Chicago, has recently published a 32-page booklet, illustrating and describing its blue-printing supplies and equipment. A particular feature of the catalog is the Pease blue printing machine which is of the continuous electric type. The company also makes simplex and duplex paper coating machines. The blue line apparatus permits the operator to make either blue prints or direct blue line prints and to change from one to the other without stopping the machine. Other products include sheet washers, washing and drying machines, drying ovens, wringers and paper trimmers.

PLATES FOR REINFORCED CONCRETE.—The Berger Mfg. Co., Canton, O., has issued an 82-page, illustrated booklet, describing its rib-trus, ferro-lithic and multiplex furring plates for reinforced concrete construction. Rib-trus is a perforated and expanded reinforcing plate said to be specially adapted for reinforcing roofs, floors, sidewalks, partitions, etc. Ferro-lithic plates are composed of a series of dovetailed, cross-ribbed formations, giving unusual rigidity to the plate. Multiplex plates are intended for heavy service floors. The illustrations show the methods of applying these various products and instances where they have been installed.

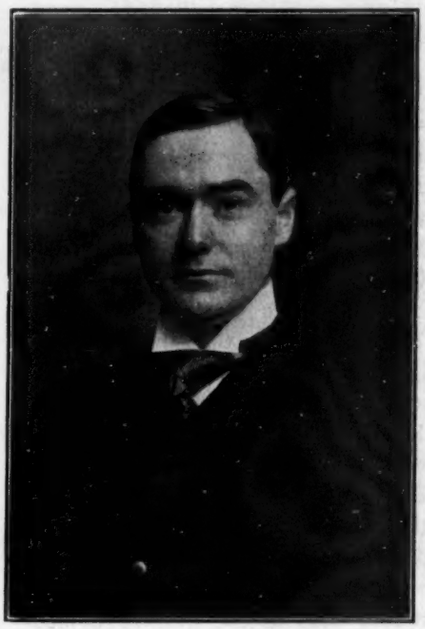
HOISTS AND CRANES. — Several bulletins recently issued by the Vulcan Engineering Sales Co., Chicago, are devoted to pneumatic hoists, hand power traveling and jib cranes. The hoists are made for either vertical or horizontal use and include single-acting, air-balanced, automatic load load retaining and multiple hoists. The hand power traveling cranes include a large variety of types, among them being several styles of single and double beam cranes, combined cranes and air hoists, and combined cranes an dtrolleys. The jib cranes are made with single or double tie rods, for stationary or portable use, and are under or over braced.

MOLDING MACHINES. — A handsomely illustrated, 16-page catalog, issued by the International Molding Machine Co., Chicago, is devoted to hand turn-over draw and power turn-over power-draft molding machines. Numerous illustrations of the turn-over draw machine are included, which show the various operations necessary for making a mold. The installation of one of these machines for molding cores also is shown. The power turn-over power-draft machine employs separate cylinders for turning the pattern. A large cylinder is used for turning the mold over and smaller cylinders are employed for drawing the pattern. In this way the air consumption is reduced to a minimum. Several pamphlets issued by this company are devoted to a jar-ramming machine for making cores and a combination jar-ramming and turn-over draw molding machine. This company's power squeezer also is shown in a four-page circular.

SAND BLAST MACHINERY. — The J. W. Paxson Co., Philadelphia, has issued a 24-page catalog describing its very extensive line of Paxson-Warren sand blast machines. A number of excellent illustrations are included, showing the following machines: Sand blast machine with water trap; 20-inch portable sand blast machine with water trap; hand cleaning machine; steel sand and dust box; elevator boot belt and buckets; revolving screen; tilting sand blast tumbling barrel; exhaust system; suction hoppers and air compressors. The sand blast process is recognized as an economical method of cleaning iron, steel or brass castings, and all kinds of metals for machining, electroplating, sherardizing, galvanizing, etc. It is of particular value also for cleaning paint, rust and scale from bridges, viaducts, etc. The booklet contains tables showing the sizes in which the various machines are made and brief descriptions of the uses for which each is adapted. Full instructions for operating are given. The Paxson company designs and installs complete sand blast plants for any service, and manufactures a complete line of foundry equipment.

MEN OF THE IRON TRADE

William E. Manning, who has been assistant general manager of sales of the Youngstown Sheet & Tube Co., Youngstown, O., on the first of the year succeeded George E. Day as general sales manager of the company. Mr. Day had presented his resignation to take effect Jan. 1, and his decision to retire caused general regret among his associates, who endeavored to alter his determination. He had decided some months ago, however, to retire and take a needed rest, and refused to delay the step. Mr. Day will make an extensive tour and it is thought that he will eventually retire to his extensive properties in southern California and devote



WILLIAM E. MANNING

his time to his ranching interests. Mr. Day was formerly a resident of Chicago, and 10 years ago assumed the general sales managership of the Youngstown company. He is widely known throughout the iron and steel trade, and his successful administration of the sales department has been striking. Mr. Manning was born in Youngstown and his family is prominently identified with the early history of the city. He became an employe of the Youngstown Sheet & Tube Co., when young, and has won the reward of faithful service by strict application to duty.

Lawrence H. Underwood resigned his position as superintendent of blast furnaces, Riverside works, National Tube Co., Wheeling, W. Va., the first of the year. Mr. Underwood has taken up special work in by-product coke at the United States Steel Corporation's new Koppers ovens, at Gary, Ind. George W. Hewitt, formerly assistant, has been appointed to the position vacated by Mr. Underwood. Mr. Hewitt is a graduate of the University of Wisconsin.

W. H. Foster, president of the General Fireproofing Co., Youngstown, O., has returned from a trip to Europe. Mr. Foster states that in all the countries visited, with the exception of Austria-Hungary, the people appeared to be prosperous and contented. In the latter country, conditions were chaotic, due to the fear of war with Russia and Servia.

T. Rice Davis, who is general manager and treasurer of the Vermilion Malleable Iron Co., recently incorporated, was formerly superintendent of the Northwestern Malleable Iron Co., Milwaukee, Wis. The company expects to be operating at Hoopston, Ill., about the first of the year. C. L. Liehau, secretary of the Vermilion Malleable company, was connected with the Chain Belt Co., Milwaukee, for a number of years. The company has a modern plant and is equipped to handle match plates, machine and hand patterns.

J. Harvey Patton was elected president of the Harrisburg Pipe & Pipe Bending Co., Harrisburg, Pa., at the recent meeting of the board of directors. The stockholders elected the following board: Charles A. Kunkel, E. Z. Wallower, J. Harvey Patton, D. E. Tracy and W. T. Hildrup Jr. The other officers chosen by the board, immediately after the stockholders' meeting, were E. Z. Wallower, vice president; W. T. Hildrup Jr., general manager, secretary and treasurer; D. E. Tracy, general superintendent; W. P. Starkey, assistant general superintendent.

Oscar Black, who has been superintendent of the Mahoning Valley works of the Republic Iron & Steel Co., Youngstown, O., has been transferred to the plant of the company at Moline, Ill., where he will be superintendent. He takes up the duties of C. T. Dabney, who has accepted a position with the Dilworth Porter Co., Pittsburgh. On leaving the Mahoning Valley works, Mr. Black was presented a diamond ring and a gold chain to which was attached an Elk's tooth charm. He is succeeded at Youngstown by L. H. Mullin, who has been assistant superintendent of the Mahoning Valley works.

William T. Graham, who has been president of the American Can Co., since 1905, has resigned, and Frederick S. Wheeler has been elected president to succeed Mr. Graham. Mr. Wheeler has been succeeded as vice president by W. H. Phelps, and R. H. Ismon has been elected treasurer. F. Rudolph, of Chi-

GEORGE E. DAY

cago, has been re-elected vice president. Mr. Graham became identified with tin plate manufacture in the early 90's, when he was elected president of the Aetna-Standard Iron & Steel Co., Bridgeport, O. He was still president of the Aetna-Standard company when the American Tin Plate Co., then recently formed, took over the Aetna-Standard works. Mr. Graham then became the American Tin Plate Co.'s first president with Daniel R. Reid as chairman. In 1901, when Mr. Reid formed the American Can Co., Mr. Graham became a director, and in 1905 was elected president of the company, holding this office until his resignation just announced.

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Conviction of the Dynamiters

The conviction of 38 union labor leaders at Indianapolis on the charge of unlawfully using the mails in the transporting of dynamite is a great triumph for justice and should demonstrate to members of unions everywhere that the doctrine, openly advocated or secretly adhered to or winked at by many thousands of union men and their sympathizers, that there is industrial strife in this country which justifies actions which ordinarily would be called crimes will not be tolerated by the unprejudiced citizens of the United States. The members of the jury in the Indianapolis court were farmers and country merchants, who have not been connected with the so-called war between labor and capital. These men represent the sound common sense of the American people, who are utterly opposed to all violence. The jurors listened to the voluminous testimony through three long months and came to the conclusion that the 38 defendants were guilty as charged in the indictments. Unfortunately it was not possible to try the men for the real offenses, including murder, of which some were guilty. But enough has been accomplished to show to labor leaders that the American people, when they calmly consider a case presented to them, cannot be fooled by any fallacious reasoning which asserts that because employers may be unjust, employes have the right to set aside the law of the land.

Labor leaders are receiving some very sound advice from newspapers nowadays. *The Chicago Tribune,* which certainly cannot be accused of being a representative of capital, declares that the verdict at Indianapolis will fall heavily upon the consciousness of the American people, and that if union labor does not secretly accept the policy of violence, it is now time to declare it publicly, formally and authoritatively and back that declaration by weeding out of its leadership all men who countenance violence, secret or open.

Until the overwhelming evidence was presented at Indianapolis, probably there were few who thought it possible that officers high in the counsel of a great labor organization would be guilty of the monstrous crimes of which they were charged. Now that the proof has been established, labor unions will be under closer surveillance than ever before. If they have any regard for their own welfare, they will show by their actions as well as by their words that under no excuse whatever will they condone violence or any disregard of the law.

Railroad Buying of Iron and Steel

The annual statistics of the *Railway Age Gazette's* annual compilation of railway statistics shows 234,758 freight cars were ordered by the railways of the United States, Canada and Mexico during the year 1912. In nearly all cases, the returns were received direct from the railways, stating their purchases for the entire year, and thus the total is doubtless substantially correct. It bears out very closely the expectations of the steel trade, derived from reports of car orders placed from week to week. The orders exceeded those in 1911 by no less than 100,000 cars, and made 1912 the third best year for orders in history, the only better years being 1905, with 341,315 cars, and 1906, with 310,315 cars. The calendar year comparison, however, is not the most important. This car buying movement began at the close of October, 1911, so that in the past 14 months, including the Harriman orders, placed since the *Gazette's* summary, there have been ordered more than 300,000 freight cars, against less than 75,000 in the first 10 months of 1911.

According to Poor's latest statistics, there were in existence at the close of the fiscal year 1911, 2,354,682, so that the orders of 14 months have represented 13 per cent of the cars previously in existence. A large number of the cars ordered are for replacement purposes, but even these represent a large increase in railroad facilities, since replacement goes by number, and the capacity of the new cars greatly exceeds that of the cars abandoned.

Somewhat of a surprise is furnished by the *Gazette's* statement that the number of freight cars built in 1912 was only 152,429, there being 3,060 passenger cars built, making a total of 155,489 cars. The maximum number built in a year was in 1907, 284,188 freight and 5,457 passenger, a total of 289,645 cars, and the shops did not run to absolutely full capacity even in that year. There have been additions

tc capacity since, but the capacities of some plants have been reduced, through their facilities for building wooden cars having become practically useless. Then, too, there were more cars turned out in 1907 with certain equipment than can be turned out now, because rather large numbers of cars of about 30 tons capacity were being made, whereas now relatively few cars run under 40 or 50 tons capacity, and some run above 50 tons. The full capacity, in cars of the types now being ordered, is probably about 300,000 freight cars annually, which means that in 1912 the shops ran at an average of 50 per cent. The surprising feature of this finding is that it required so little support, relatively, from the car shops to keep the plate mills busy, for they certainly were busy from early last year.

In 1912, there was an excess of freight cars ordered over those built, according to the figures cited, of 182,329, and with 75,000 cars or more carried on books Jan. 1, 1912, and with orders placed in the past few days or now pending the car shops appear to have assured fully 300,000 cars for this year, double the number they built last year, and evidently indicating that the filling of present orders will run over quite largely into 1914. The rate of car building will probably hinge chiefly upon the supply of labor and of plates at such prices as the car shops can afford to pay. They will doubtless take all the plate tonnage available within certain limits, promising excellent support to this market.

Locomotives built in 1912 are reported at 4,915, against 4,515 ordered, the difference being made up in the fact that 512 locomotives were built for export, such orders not being reported.

The mileage of track laid in 1912 can be estimated only roughly. Poor's statistics show that from the close of the fiscal year 1906 to the close of the fiscal year 1911 there was an increase of 23,807 miles of railroad, and an increase of 46,071 miles of track, including second, third and fourth track as well as siding and yard track, practically two miles of track to one mile of new road. The *Railway Age Gazette* reports new road built in 1912 at 2,997 miles, against 3,066 miles in 1911, so that it may be assumed, roughly, that 6,000 miles of new track was laid by the regular steam roads, which, with an average of 85-pound rails, would mean 800,000 tons. The tonnage going into replacements was doubtless considerably larger, and with exports, light rails used in various industrial operations and girder and T rails used by electric lines, the total rail tonnage of 1912 easily exceeded 3,500,000 tons, and may perhaps have exceeded 4,000,000 tons.

In both rails and cars, railroad consumption of iron and steel is certain to be much larger in 1913 than in 1912.

Rails for export and rails used in industrial purposes and for electric lines are not properly considered as railroad consumption. In rails, cars, locomotives, structural work, repairs and miscellaneous work, the railroads probably consumed in 1912 between 5,000,000 and 5,500,000 gross tons of iron and steel, weighed in the form in which material was put into consumption, as finished cars, locomotives, etc. It may be estimated conservatively that their consumption in 1913 will be at least 2,000,000 tons greater.

Years ago, it used to be estimated, though perhaps the estimates were somewhat too large, that the railroads consumed between 50 and 60 per cent of the total iron and steel production. They are doing nothing of the sort at present, since we are making more than 32,000,000 tons of pig iron a year, more than 32,000,000 tons of steel ingots, and considerably more than 25,000,000 tons of finished rolled iron and steel, together with a large tonnage of iron and steel castings. The iron and steel industry has largely outgrown its dependence upon the railroads. In view of the plate situation, the railroads must take their cars as they can get them, instead of buying only according to their own convenience, as they used to do only a few years ago.

American Pig Iron for the Pacific Coast

The opening of the Panama canal will be an event of special importance to the iron and steel interest of the far west on account of its possible effect on the Pacific coast pig iron market. Due to adverse freight differentials, American iron is a comparative stranger in Pacific foundries; but, with the opening of the Canal, domestic makers, particularly those in the south, will have a chance.

At present the all-rail rates from Alabama furnaces to Pacific coast points average $10 a ton. No. 1 foundry iron from the Birmingham district, therefore, costs the western foundryman approximately $24.50 today. The price is quoted on a basis of No. 1 iron, because lower grades are not popular west of the Rockies, due to their lesser scrap carrying qualities. At the same time, English iron can be laid down in Pacific coast ports for about $22. This margin in favor of foreign iron is comparatively constant, although at times it climbs as high as $4 or $5 and occasionally falls as low as $1. It is practically always maintained, however, and results in the foreign pig iron makers monopolizing the western market.

With the Canal in service, however, it is estimated that southern pig iron can be moved from Birmingham to Seattle for $5 a ton, or possibly a little less. On this basis, southern No. 1 would now sell at $19.50, f. o. b. Seattle, a price considerably below that of foreign iron of equal grade.

The Canal will also have the effect of reducing the freight charges on the English iron, but not sufficiently to meet the domestic price. It is possible the English furnaces, which have long enjoyed this business, would not give it up without a fight, but such a contingency is hardly probable. It would mean their selling iron for less than it could be disposed of at home and there is not sufficient business at stake to warrant such a procedure, even temporarily.

In fact, if busy times continue, it would be surprising if the southern producers make any effort to take advantage of the Canal to drive foreign iron from the Pacific coast. At a liberal estimate, the entire consumption of pig iron in the states of Washington, Oregon and California does not exceed 150,000 tons per year. Furnaces are not likely to become excited over such a tonnage, when the big buyers in the east are clamoring for deliveries and ordering more pig iron than the country can make.

The opening of the Canal, therefore, will not necessarily result in a flow of American iron to Pacific coast markets, or in lower prices in that district. But it will at least serve the western foundrymen as an insurance against extortionate tactics on the part of the foreign producers.

Extensive Building Plans of Bethlehem Steel Co.

One Blast Furnace, Twelve Open Hearth Furnaces, Mills for Rolling Special and Alloy Steels and Other Improvements

The directors of the Bethlehem Steel Co. have appropriated $6,000,000 to cover the numerous improvements and additions to the company's plants to be made this year.

These improvements will include one new 22 x 90-foot blast furnace, six additional 75-ton open-hearth furnaces for the Saucon plant, six additional 50-ton open-hearth furnaces for the Lehigh plant, an electric melting furnace department, new rolling mills for the crucible steel department, together with a complete new blooming mill and merchant mill department for the rolling of special and alloy steels. Improvements of a miscellaneous character will be made to a number of the present departments.

A description of the improvements made, under way, and in contemplation, follows:

Lehigh Plant

Work has been started on a new 500-ton blast furnace, which will be known as blast furnace "A". The furnace will be in every respect a duplicate of the four large modern furnaces known as "D" "E", "F", and "G", now in operation. It will be 22 x 90 feet, equipped with five 22 x 100-foot McClure stoves, and an electrically-operated skip hoist. With the completion of this furnace, the blast furnace plant will consist of five large modern furnaces and two smaller furnaces, the combined plant having an output capacity of 1,000,000 tons of pig iron per year. The new furnace will be blown by two 42 x 60 Bethlehem gas driven blowing engines. With the completion of these two blowing engines, there will be a total of 11 Bethlehem gas driven blowing engines in operation in connection with the blast furnace plant.

The enlarged furnace plant has made necessary an additional ore bridge crane for handling the raw materials for the blast furnace plant, which will be purchased at once. This crane, in dimensions and capacity, will be a duplicate of the present one, with a span of 247 feet from center to center of towers, and a total over all length of 550 feet. The capacity of the grab bucket will be 14 tons.

In order to take care of the enlarged blast furnace plant, it has been found necessary to purchase additional limestone properties adjacent to the company's present quarries at McAfee, N. J. Plans are being perfected for equipping the limestone quarries with modern machinery for quarrying and crushing the limestone.

For the blast furnace boilers, a complete new feed water heater and pump installation will be finished within the next month.

The Bethlehem Steel Co. has recently purchased the property on which the plant of the New Jersey Zinc Co. was formerly located, comprising 12 acres, immediately adjoining the western end of the Bethlehem Steel Co.'s works, and on this and adjacent property the following will be located:

A new open-hearth furnace plant of six 50-ton furnaces, to work in conjunction with the present Lehigh plant open-hearth furnaces in supplying steel for the new merchant mill department (a description of which appears later in this article). These furnaces, in the main, will be run for the making of special alloy steels. The plant will be complete within itself, and specially designed and laid out for the making of the higher grades of alloy steels.

The melting capacity for the higher grades of crucible and alloy steels, will be further supplemented by the installation of an electric furnace plant. The work on the first one of these furnaces has now begun, and the first furnace should be in operation by the middle of 1913.

The new mill department will comprise a two-high reversing 32-inch blooming mill, electrically driven, a continuous mill, a four-stand 22-inch mill, a 16-inch and 12-inch combination mill, a 12-inch and 8-inch combination mill, and a 10-inch guide mill.

All the mills in this layout will be new, with the exception of the 12-inch and 8-inch mills, which will be moved from their present location, and in their place is to be erected, with new buildings, 12, 10 and 8-inch hand mills, and a complete finishing department, with annealing furnaces, straighteners, etc., to provide for the proper finishing of the output of the crucible and electric furnace departments. A special feature of this new mill layout, will be the application of electricity to all drives, including the blooming mill, 22-inch mill, the smaller mills, shears, in fact, the entire supply of power is planned to be electrical.

The blooming mill will be served with specially constructed soaking pits for the careful and uniform heating of the high grade steels, which in turn will be served with the usual stripper and charging and drawing electric cranes. A new and thoroughly equipped finishing department, consisting of cold drawing and straightening machines, as well as tempering and annealing facilities, will be provided for the proper handling of the output from the various mills.

To provide electric power for these new extensions, it is planned to install four additional 3,000 kilowatt generators, driven by Bethlehem gas engines, supplementing the present gas driven electric power installation. The new electric generators will be of high voltage alternating current, and will be tied into the present direct current generators with a large motor generator balancing set, for the purpose of distributing the load factor over both the alternating and direct current generators.

Adjacent to the new crucible finishing building is the old puddle mill department, which will be rebuilt during the year, and placed in new brick and steel buildings, which is to be the standard of construction throughout the new mill extensions.

The present two-story carpenter and pattern shop, with a floor area of 34,000 square feet, will be vacated, and this building will be used to provide additional machine shop capacity for the manufacture of army field guns, limbers, caissons, carriages, etc. This will necessitate the construction of a new building to be used as a carpenter and pattern shop, which will be four stories, brick and steel, with general dimensions of 80 x 180 feet.

Adjacent to this will be erected a two-story mechanical and electrical repair shop and storehouse to serve the requirements of the entire Lehigh plant.

The cleaning and finishing end of the steel foundry will be entirely rebuilt of permanent construction, with further additions to the building. For additional pattern storage for the steel foundry, a new fireproof five-story building, 60 x 200 feet, will be erected.

Similar improvements are to be made to the iron foundry.

A number of new machine tools are either purchased, or approved for purchase, for addition to the different machine shops, consisting of all classes of machines, planers, roughing lathes, cold saws, boring mills, etc. One of the principal installations in this line is the entire replacement of the old machines with modern ones, in the roughing end of the large No. 2 machine shop. This equipment is for the particular purpose of increasing the facilities for increased machined forging output.

To the projectile department is being added additional treating facilities, and a number of machine tools, to the end of increasing generally the capacity for all sizes of projectiles.

In the drop forge department, an entire new finishing, plant is being installed, consisting of warehouse, heat treatment, cold trimming, and shipping sections. It is planned to provide warehouse facilities for the carrying on stock of a number of standard lines of forgings, to insure prompt shipment. A well equipped yard and storage for bar stock, to serve this department, is about completed. This storage is commanded by electric over-head cranes, and the stock carried in racks protected from the weather. In the hammer section it is planned to add 10 new drop hammers, ranging from 800 pounds to 2,500 pounds in capacity.

A new locomotive repair shop and roundhouse is to be erected, providing storage and repair facilities for the transportation department. A number of new locomotives and locomotive cranes are to be purchased to meet the additional transportation requirements.

An addition to the general office building of the company, which is located at Third and Poplar streets, South Bethlehem, Pa., is practically completed. The extension will be four stories, the same as the original office building, as well as the increasing of the east wing from one story to four stories in height. A fifth floor will also be added to this building during the ensuing year, to provide restaurant facilities for the officers and heads of the various departments, and United States and foreign government representatives stationed at the works.

In addition to the enlarged facilities of the general office building, a handsome brick building is being erected at the east end of the Lehigh plant for the United States army and navy officers who are permanently stationed at the works. This building will include a chemical laboratory for the use of the United States government chemists permanently located at the works.

The company's present chemical and physi-

cal laboratories, which are now in separate buildings, have proved inefficient to meet the constantly increasing requirements of the plant, and to provide for this condition, a combined chemical, physical and metallographic laboratory building will be constructed. The building will be two stories, of ample size to cover the present as well as the future needs of the company. The laboratories will be fitted up in the most modern and complete manner, requiring in itself a great deal of new equipment.

There is now in course of erection an extension of 60 x 300 feet to the armor plate department machine shop, to provide additional erecting and assembling space, as well as room for additional machinery, consisting of a heavy pit planer and grinding machines. The new extension will be provided with a 75-ton electric traveling crane.

During the coming year, the steam engines driving the various machines in this shop, will be dismantled, and replaced with electric motors, which will complete the entire changing of all the company's machine shops over to electric drive.

In the treatment section of the armor plate department, there has been added during 1912, an additional 50-foot carbonizing furnace, and a 100-ton electric traveling crane. A new office building, 40 x 70 feet, has been provided for the department, combining the heads of the various sections of this department in one central location.

In the merchant forge department, there have been added during the year, two new heating furnaces, one for the 4,000-ton hydraulic forging press, and the other for one of the large hammers. There is now being erected a new office building, to be used as combined office for both the merchant forge and open-hearth No. 1 departments.

During the past year, and to be completed during the ensuing year, an entire new system of air compressors is being installed, replacing all the old steam driven compressors scattered throughout the plant. The compressors are of two types, namely, electric motor driven, with 2,500 cubic feet capacity per minute, and two bow pressure steam turbine driven rotary compressors, to deliver, respectively, 2,500 and 5,000 cubic feet of air per minute. These last two compressors will be driven by the exhaust steam from the hammers in the hammer forge, and the exhaust steam from the pressure pumps in the armor plate department. With this installation complete, the entire air compressor system throughout the plant will be either motor driven, or driven by exhaust steam.

Saucon Plant

Six 75-ton open-hearth furnaces are being added to the Saucon open-hearth plant, making in all, when completed, a total of 16 furnaces, with an ingot capacity of 1,000,000 tons per year. This enlarged plant will be so arranged that it can be operated either by the straight open-hearth process, or by the duplex process in connection with the two 20-ton Bessemer converters already in operation. The addition to the open-hearth building, necessitated by the six additional open-hearth furnaces, is 160 feet wide by 800 feet long. To the equipment for serving the new furnaces, will be added a 60-ton charging floor crane, a 75-ton mixer crane, and an additional electric charging machine. To supplement the present mixer capacity, consisting of two 400-ton mixers and one 250-ton mixer, a new 1,000-ton mixer will be installed. This mixer will be of special design, electrically operated, and when in operation will be the largest in use in any steel plant in the United States.

An additional electric power unit, consisting of one 1,500-kilowatt generator, driven by a Bethlehem gas engine, is being added to the electric power station at Saucon plant. This gas engine is to be operated on by-product coke oven gas which the company is receiving from the Lehigh Coke Co.'s plant, which has been placed in operation during the year 1912, located immediately adjacent to the Steel company's works, and erected, primarily, for the purpose of supplying coke to the steel company.

The various extensions and additions to the plants have made necessary the providing of increased water supply, and for this purpose there is being added to the central pumping station, two 18,000,000-gallon pumps.

During the year additional finishing capacity to the already large beam yard has been installed, consisting of an additional crane runway, and a specially designed motor-driven shear with tables, built by the Bethlehem Steel Co., for the shearing from stock of beams and channels.

It has been decided to erect a central cinder and scrap reclaiming plant, through which all the cinder from the various blast furnace, open hearth, and Bessemer plants will be passed for the reclaiming of the iron and steel.

Plans are being prepared for the erection of a warehouse in Boston, to carry on stock for the New England territory, a supply of the company's products, such as the various kinds of tool steels, staybolt iron, special steel shapes and bars.

In order at all times to insure an absolutely pure drinking water supply to the employes of the company, a mechanical filtering plant, approved by the Pennsylvania state board of health, has just been put into service, and is now supplying drinking water throughout all the departments of the Lehigh and Saucon plants.

IRON ORE DEPOSITS

Staked Out in the James Bay Region by Canadians.

Ottawa, Can., Jan. 7.—Eight hundred acres of iron deposits have been staked out in the James Bay region of Canada by the Ungava Miners & Traders, Ltd., according to information just received by the company from the three expeditions which it sent into the north country last year. The possibilities of the immense region around James Bay in the Ungava district have long been a subject of speculation among iron miners and government experts and the news of the find, brought down by government engineers, has caused much interest. Claims were staked out near Eastman and Fort George, while at Clark Island a large acreage of ore was staked. Some apparently extravagant claims are made. With the completion of the Hudson Bay railway, development of the deposits will begin.

Plans are being discussed by the board of control of Toronto, Ont., for an expenditure of $10,000,000 for new street car service. The projected improvements include 27 miles of double surface line, 150 steel cars at $8,000 each, equipment, etc.

TAKE OPTION

Philadelphia Interests Lease Sam Lanham Blast Furnace.

The option held on the Sam Lanham blast furnace, Rusk, Tex., owned by the state, has been taken up by Philadelphians who have been investigating the property for some time. Formal notice of acceptance of the terms has been given Gov. O. B. Colquitt by Judge Hiram Glass, attorney for the Philadelphians, and the first payment of $1,666 under the contract has been made to the state.

The contract will be filed some time before Jan. 12, the date the option would have expired, and conveys possession in the name of H. A. O'Neal, trustee for the Philadelphians, who are to supply money to exploit certain iron ore lands in eastern Texas. The lessees have already invested some money in acquiring ore lands in Cass county. The contract also provides for the purchase of a minimum amount of iron ore from the state, payment therefor being added to the $5,000 rental per annum for the furnace. In addition to this the state will also sell power, and possibly material, to the lessees, although no convict labor is provided for in the contract. The contract calls for operation of the furnace within six months, which, Judge Glass says, is barely time to entirely rehabilitate the machinery and replace the parts rendered defective by time, use and neglect. He says that $20,000 will be required to put the stack in condition. Coke to be used in the furnace probably will be obtained from Birmingham, Ala. The contract is to run for two years with the privilege of extending it four years.

Investigating Terminal Allowances

Commissioner Harlan, of the Interstate Commerce commission, heard testimony last Friday and Saturday, at Washington, in the investigation of allowances made by the trunk lines to terminal railroads. The following witnesses were examined: T. S. Stingley, traffic manager of the Baltimore & Sparrows Point road, which is owned by the Maryland Steel Co.; J. A. Coakley, representing the Newburg & South Shore railroad, Cleveland; William Stewart, representing the Buffalo Union Furnace Co.; F. Masten, the Corrigan-McKinney Co.; R. F. Dennison, the Wheeling & Lake Erie, and other Cleveland and northern Ohio representatives of steel plants and railroads.

Pig Iron Output in 1912 Sets New High Mark

Production Last Year Was 29,325, 513 Tons, Nearly Two and a Half Million Over 1910—
December Breaks Record With Almost 2,800,000 Tons and Average Daily of 89,590 Tons

A complete series of new high records for production of anthracite and coke pig iron was established during 1912. Continuing the record-breaking started in October with a new high monthly total and in November with a fresh daily average mark, December brought the year, in which the previous record for total output was broken, to a fitting close by setting new figures for both the monthly production and daily average.

The total production last year was 29,325,513 tons, a gain of 6,126,912 tons over 1911 with 23,198,601 tons and 2,480,199 tons higher than the previous record made in 1910 with 26,845,314 tons.

For the first time in the history of the American iron trade more than 2,700,000 tons were made in one month. The output in December was 2,777,292 tons, breaking the previous record set in October at 2,683,645 tons by 93,647 tons and surpassing November with 2,639,562 tons by 137,730 tons.

In breaking the record for daily average production, December set the new high mark at 89,590 tons, a gain of 1,605 tons over November with 87,985 tons, which month had just broken a two-year-old record. In addition, the output of the merchant furnaces in December was close to the record with 755,894 tons, the steel works furnaces made more than 2,000,000 tons in one month for the first time, the number of stacks in blast was the highest since April, 1910, more than 2,000,000 tons were made in each month last year for the first time in any year, and the average daily production for a year was of course broken. Production last month was at the rate of 33,000,000 tons annually.

A new record for output in six months was made during the second half of 1912, when 15,447,683 tons were produced. This compares with 13,877,830 tons in the first half of 1912; 11,795,320 tons in the last half of 1911; 11,403,281 tons in the first half of 1911; 12,086,867 tons in the last half of 1910, and 14,758,447 tons in the first half of 1910.

The daily average production last year was 80,124 tons compared with 63,558 tons in 1911 and 73,549 tons, the previous record, in 1910.

The merchant furnaces produced 4,023,031 tons in the second half of 1912, against 3,348,704 tons in the first half, a total for the year of 7,371,735 tons. The output for the last half of 1911 was 3,007,185 tons; for the first half of 1911 was 3,402,061 tons; for the last half of 1910 was 3,950,281 tons and for the first half of 1910 was 4,807,644 tons.

The non-merchant or steel works furnaces produced 11,275,918 tons, a new record, in the last half of 1912, compared with 10,401,027 tons in the first half, a total of 21,676,945 tons for the year. The production in the second half of 1911 was 8,654,636 tons; in the first half of 1911 was 7,898,507 tons; in the second half of 1910 was 8,016,780 tons and in the first half of 1910 was 9,779,985 tons.

The number of furnaces in blast on Dec. 31, was 291, compared with 215 active on the last day of 1911 and 193 on the last day of 1910.

The output of merchant iron in December was 755,894 tons, compared with 715,502 tons in November, a gain of 40,392 tons. The steel works, or non-merchant furnaces, produced 2,000,882 tons in December against 1,904,384 tons in November, a gain of 96,498 tons. There was a net gain of

MONTHLY PRODUCTION RECORD.	Tons.
October, 1907	2,359,690
September, 1909	2,375,589
October, 1909	2,604,037
December, 1909	2,682,702
October, 1912	2,683,645
December, 1912	**2,777,292**

DAILY AVERAGE RECORD.	Tons.
September, 1909	79,186
October, 1909	84,001
November, 1909	84,425
December, 1909	86,539
February, 1910	86,748
November, 1912	87,985
December, 1912	**89,590**

HOW NEW PIG IRON RECORD WAS MADE IN 1912

	Merchant.	Non-Merchant.	Ferro.	Spiegel.	Totals.
January	557,311	1,466,943	22,129	6,423	2,052,806
February	562,101	1,517,868	15,912	2,915	2,098,796
March	562,855	1,834,218	10,633	3,823	2,411,529
April	529,259	1,834,176	11,007	3,179	2,377,621
May	553,808	1,926,029	15,181	8,323	2,503,341
June	583,370	1,821,793	17,303	11,271	2,433,737
First half	3,348,704	10,401,027	92,165	35,934	13,877,830
July	574,880	1,799,971	13,581	14,135	2,402,567
August	627,842	1,845,546	14,205	12,570	2,500,163
September	650,505	1,768,992	16,972	7,985	2,444,454
October	698,408	1,956,143	18,840	10,254	2,683,645
November	715,502	1,904,384	14,428	5,248	2,639,562
December	755,894	2,000,882	10,508	10,008	2,777,292
Second half	4,023,031	11,275,918	88,534	60,200	15,447,683
Grand total	7,371,735	21,676,945	180,699	96,134	29,325,513

AVERAGE DAILY PRODUCTION OF PIG IRON FROM JAN. 1, 1907, TO JAN. 1, 1913

	1907.	1908.	1909.	1910.	1911.	1912.
January	70,800	33,657	57,683	83,871	56,989	66,220
February	73,108	37,476	60,088	86,748	63,617	72,372
March	71,507	39,673	58,795	83,508	69,863	77,791
April	74,224	38,504	57,687	82,590	68,163	79,254
May	73,904	37,677	60,218	76,607	60,367	80,753
June	74,581	36,877	64,334	76,276	59,109	81,125
July	72,685	39,632	67,375	69,617	57,294	77,502
August	72,376	44,065	72,021	67,864	61,995	80,650
September	72,472	47,208	79,186	68,282	65,797	81,482
October	76,119	50,769	84,001	67,297	67,486	86,569
November	60,685	52,744	84,425	63,679	66,637	87,985
December	39,830	55,602	86,539	57,416	65,558	89,590
Average	69,314	42,842	69,416	73,549	63,558	80,124

MONTHLY PRODUCTION OF PIG IRON FOR PAST SIX YEARS

	1907.	1908.	1909.	1910.	1911.	1912.
January	2,194,801	1,043,374	1,788,164	2,599,995	1,766,658	2,052,806
February	2,047,036	1,086,809	1,682,470	2,428,937	1,781,285	2,098,796
March	2,216,709	1,229,856	1,822,644	2,588,736	2,165,764	2,411,529
April	2,226,708	1,155,122	1,730,608	2,477,700	2,044,904	2,377,621
May	2,291,030	1,168,002	1,866,757	2,374,802	1,871,388	2,503,341
June	2,237,420	1,106,300	1,930,029	2,288,279	1,773,282	2,433,737
July	2,253,243	1,228,604	2,088,620	2,158,124	1,776,108	2,402,567
August	2,243,656	1,366,019	2,232,642	2,103,791	1,921,832	2,500,163
September	2,174,148	1,416,252	2,375,589	2,048,461	1,973,918	2,444,454
October	2,359,690	1,573,824	2,604,037	2,086,205	2,092,061	2,683,645
November	1,820,558	1,582,314	2,532,740	1,910,385	1,999,100	2,639,562
December	1,234,733	1,723,664	2,682,702	1,779,899	2,032,301	2,777,292
Totals	25,299,732	15,680,140	25,337,002	26,845,314	23,198,601	29,325,513

two in active stacks, 12 being relighted and 10 blown out. Five merchant stacks were lighted and six blown out, a net loss of one. Seven non-merchant furnaces were put in blast and four blown out, a net gain of three.

The production of ferro in the first half of 1912 was 92,165 tons; in the second half 88,534 tons, a total production of 180,699 tons, compared with 125,739 tons in 1911. The production of spiegel in the first half of 1912, was 35,934 tons; in the second half, 60,200 tons, a total production of 96,134 tons, against 110,473 tons in 1911.

ACTIVE STACKS ON LAST DAY OF MONTH FOR PAST SIX YEARS

	1907.	1908.	1909.	1910.	1911.	1912.
Jan.	311	139	234	311	210	227
Feb.	308	150	233	311	226	235
Mar.	304	154	229	310	236	237
Apr.	327	146	224	291	220	239
May	329	145	236	279	206	243
June	341	154	240	271	202	242
July	335	166	258	254	196	245
Aug.	329	181	278	244	206	254
Sept.	328	189	297	234	216	262
Oct.	314	200	309	230	214	280
Nov.	226	212	311	218	214	289
Dec.	154	221	314	193	215	291
Aver.	301	171	264	262	213	254

In December, the production of ferro was 10,508 tons against 14,428 tons in November, a loss of 3,920 tons. The production of spiegel in December was 10,008 tons, compared with 5,248 tons in November, a gain of 4,760 tons.

In the accompanying tables are shown the detailed report for December, the daily average production since Jan. 1, 1907; the monthly production for the past six years; the number of stacks in blast on the last day of each month since 1906; the months in which new records for monthly production and daily average output were successively broken; and a detailed presentation of the 1912 pig iron output.

Among merchant furnaces blown in during December was Tuscaloosa, of the Central Iron & Coal Co., on Dec. 4; one Hubbard, of the Andrews & Hitchcock Iron Co., on Dec. 12; one Wellston, of the Wellston Steel & Iron Co.; Ella, of Pickands, Mather & Co., on Dec. 17, and Robesonia, of the Robesonia Iron Co., Ltd., on Dec. 2.

Among merchant furnaces blown out during December was Lawrence of the Marting Iron & Steel Co., on Dec. 24; Mary, of the Ohio Iron & Steel Co., on Dec. 6; one Saxton, of Joseph E. Thropp, on Dec. 2, for relining and repairs; one Allens Creek, of the Bon Air Coal & Iron Co., for repairs; Rockwood No. 1, of the Roane Iron Co., on Dec. 28, and Standard, of the Standard Iron Co., on Dec. 12, for relining.

Steel works furnaces blowing in were Ensley No. 4, of the Tennessee Coal, Iron & Railroad Co., on Dec. 18; one Edgar Thomson, of the Carnegie Steel Co.; Marshall, of the Juniata Furnace & Foundry Co., on Dec. 19; Lebanon No. 3, of the Pennsylvania Steel Co., on Dec. 8; one of Worth Bros.; "D," of the Bethlehem Steel Co., on Dec. 23, and "F," of the Colorado Fuel & Iron Co., on Dec. 23.

Steel works furnaces blown out were South Works No. 8, of the Illinois Steel Co., on Dec. 23; one Carrie, of the Carnegie Steel Co.; "B," of the Bethlehem Steel Co., on Dec. 27, and "D," of the Colorado Fuel & Iron Co., on Dec. 23.

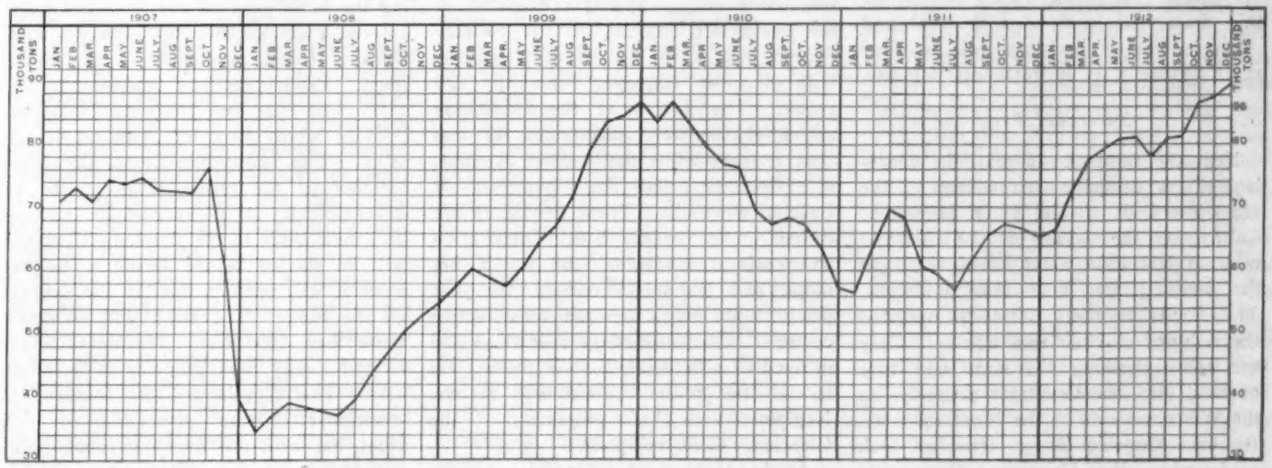
"A" furnace of the Tonawanda Iron & Steel Co., North Tonawanda, N. Y., is expected to go in blast about Jan. 15, putting both of the company's stacks on the active list.

The Rockdale Iron Co., Rockdale, Tenn., will soon blow in its Rockdale furnace, which has been out for repairs.

One Oxmoor, of the Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., is being repaired and is expected to go in blast during February. It has been idle for five years.

DECEMBER PIG IRON.

States.	No. of stacks.	No in blast last day of month. Dec.	Nov.	Total tonnage made. Merchant.	Non-Merchant.	Totals—Dec.	Nov.
Pennsylvania	159	125	121	219,504	934,483	1,153,987	1,075,064
Ohio	72	57	57	150,909	474,520	625,429	606,644
Alabama	45	24	22	116,851	54,226	171,077	167 735
Virginia	21	6	6	26,068	.....	26,068	19,679
New York	27	19	19	85,050	103,223	188,273	180,708
New Jersey	7	1	1	5,609	.....	5.609	6,167
Illinois	26	22	23	52,670	240,377	293,047	276,862
Colorado	6	3	3				
Indiana	10	10	10				
Maryland	4	3	3				
Wisconsin	6	4	4	24,920	170,172	195,092	189,081
Kentucky	7	3	3				
West Virginia	4	3	3				
Tennessee	18	7	10				
Washington	1	.	.	47,024	23,881	70,905	71,340
Georgia	2	.	.				
Texas	3	.	.				
Minnesota	1	1	1				
Michigan	3	3	3				
Missouri	1	.	.	27,289	.....	27,289	26,636
Spiegel—All states...						10,008	5,248
Ferro—All states....						10,508	14,428
Totals	423	291	289	755,894	2,000,882	2,777 292	2,639,562



DAILY AVERAGE OUTPUT OF COKE AND ANTHRACITE PIG IRON

Busy Year on the Old Ranges of Lake Superior

In Spite of Some Curtailment at Various Mines—Gogebic Exceeds Its Record by Half a Million Tons—Breitung Shipments Heavy

By M P Youngs

With an outgo falling but little short of 5,000,000 tons, the Gogebic range in 1912 exceeded its previous best record by approximately 500,000 tons. The Schlesinger company's big Newport mine was, as usual of late years, the biggest shipper, its proportion of the whole being about one-fifth. Opening the year with only 500 men employed, and these but five days a week, a condition that had prevailed since the preceding June, it closed the twelvemonth with a greatly increased payroll and operations in progress day and night. Early in the year, the properties of the Steel Corporation also were put on full time, having previously been wrought only four and five shifts, alternately each week, for several months. Corrigan, McKinney & Co.'s Colby mine, which since November, 1910, had been operated with a small crew, was wrought vigorously in 1912.

The Palms property of the Schlesinger interests resumed operations, after an idleness of several years, and working forces were increased at the mines of Pickands, Mather & Co. and other leading operators. A new shaft, 10 x 18 feet and of three compartments, is being opened at the Palms, to make available a large and rich deposit. Similar work is under way at the Schlesinger company's Anvil mine, where a shaft, 11 x 18 feet, is being sunk. Several hundred additional men are needed by the Schlesinger interests in their various Gogebic range operations. At the East Norrie mine, the Steel Corporation is sinking another great shaft, midway between the Norrie "B" shaft and the East Norrie "D" shaft. As at the Palms and Anvil, this shaft will be lined with steel and concrete, and it probably will be four years before it is in readiness for use.

Surrender Fee

Near the close of the year, the Cleveland Cliffs company surrendered to the fee owners, E. A. and J. O. Hayes, of California, the lease to the Ashland mine at Ironwood, after having wrought the property for more than a decade. The Hayes brothers formerly operated the Ashland on their own account. They are again working the mine and they operate, also, the Germania property, on the Wisconsin side of the Montreal river. Another Gogebic range transfer took place when the Hennepin, Pence and Snyder properties, west of Hurley, Wis., passed from the control of the Jones & Laughlin Steel Co. to J. R. Thompson, former superintendent of the Newport and now associated with M. A. Hanna & Co., in the operation of the American mine, Marquette range, and J. S. Kennedy, superintendent of the Hennepin group. The new owners of the lease are continuing the exploratory work.

Operating in a virgin portion of the Gogebic, the Whiteside and LaRue interests of Duluth are opening a mine in Section 21, 47-43, five miles north of the village of Marenisco. The work is the aftermath of diamond-drilling which revealed a large body of ore. A prospective mine is in Section 17, 47-45, near Wakefield, where M. A. Hanna & Co. are exploring. Ore found is now being proved up. The Longyear interests are testing the Banner property, in the same part of the range.

The Marquette Properties

While the Steel Corporation's operations in the district were not carried on as actively as in times past—its production on all of the old ranges having, in fact, been restricted during the present period of heavy mining in the Great Northern lands on the Mesabi, due to the forthcoming cancellation of the Hill lease—1912 was a busy year in the Marquette fields, and especially during the closing months. Early in February, the active mines of the Steel Corporation were put on a six-day basis, after having been wrought but four days a week since the preceding May. Production by the company during the season was the heaviest, capacity considered, at the Stegmiller property in the Swanzy district and at the Queen at Negaunee, both of which employed practically full crews. The forces at the Ishpeming active shafts were maintained at less than normal, while the Section 21 mine, at Ishpeming, and the Champion, at Beacon, were idle. These producers are owned in fee by the Steel Corporation and each is ready to send out a big output at a few weeks' notice. The year closed with Negaunee the most active center of Marquette range operations and in need of additional labor at the majority of the mines, particularly at the Negaunee and Maas properties of the Cleveland Cliffs company.

At the Maas mine, underground work was resumed in August, after having been suspended in December, 1910, to permit the rebuilding of the shaft and extensive improvements on surface. The working force will be increased to 350 men before spring. The shaft, which is concreted to the ledge, down nearly 200 feet, is 1,100 feet in depth. The ore lies deep and so far only three levels have been opened. While the Maas is one of the very best equipped mines in the Lake Superior region, the equipment at its neighbor, the Negaunee, is undoubtedly the most magnificent at any iron property in the world. The Negaunee is steadily taking on men and is expected to have an underground force of 600 by the opening of navigation. All the ore produced is coming from the new No. 3 shaft. This big opening is 900 feet deep and is lined with solid concrete, 1½ feet thick from top to bottom. The shaft is circular, with an inside diameter of 17 feet. As usual, the Cleveland Cliffs company's South Jackson open pit at Negaunee was operated during the summer season. The ores here are hard hematites and are crushed before being shipped, the plant also treating the product of the Moro mine at Ishpeming. As significant of the long life of the Marquette range, it may be noted that the Jackson property is the scene of the original discovery of ore in the Lake Superior country, and the deposits within its boundaries are still productive.

The Breitung Mines

The mines of the Breitung interests at Negaunee made heavy shipments during the latter part of the year and have entered upon another twelvemonth with working forces practically at the maximum. Production was centered at the Mary Charlotte and Breitung Hematite, both of which were left with no ore in stock. The Milwaukee-Davis, the third member of the group, is in course of development. It is expected the sinking of a new shaft at the Breitung Hematite will be started before spring. The deposit it will open is one of the deepest on the range. The shaft will go down more than 2,000 feet. The development of the Lucky Star property is in progress. The Cleveland Cliffs company is associated in the ownership of this tract, but with the Breitung estate holding the controlling interest. A four-compartment shaft being sunk will open

a deposit of 5,000,000 tons of soft ore between depths of 900 and 1,300 feet. During the year, the Republic Iron & Steel Co. resumed operations at the Cambria, Lilly and Hartford mines. These properties, formerly wrought by the Steel Corporation, are producers of soft hematite ores of good grade. The shaft at the Hartford has been deepened from its former depth of 975 feet to a depth of 1,325 feet. The year at Negaunee saw the completion of a second shaft at the Jones & Laughlin Steel Co.'s Rolling Mill mine. This shaft was raised to surface from the 620-foot level. It is 650 feet distant from the old shaft.

Cascade District

There has been a revival of the mining industry in the Cascade district, five miles south of Negaunee. The Volunteer Ore Co.'s property, idle for part of the year, is in commission again, with nearly 200 men employed. The new Cascade Mining Co., of the Pillsbury, Longyear and Bennett interests, is sinking its initial shaft. Both it and the Volunteer have deposits of much better ore than heretofore mined in the field. M. A. Hanna & Co.'s Richmond open-pit property was active during the shipping season, as was Oglebay, Norton & Co.'s Empire mine, a milling proposition. These two properties produce low-grade silicous ores. The Richmond is to be equipped with a second gyratory crusher, in order that ore crushed still finer may be sent out. Drilling operations were conducted in the Cascade country during the year by the Heidelbach interests of New York, but with what result is not stated.

Until late in the year, the only properties active in the Swanzy or Gwinn district, 20 miles south of Negaunee, were the Steel Corporation's Stegmiller and the Cleveland Cliffs Co.'s Stephenson and Austin. Shipments were made, however, from the Cleveland Cliffs Co.'s Princeton stock piles. Operations have been resumed at the Princeton No. 2 mine, and prior to spring ore also will be going into stock at the Smith mine. The latter is one of five at which the Cleveland Cliffs Co. has sunk concrete shafts through the sandy overburden, the others being the Jopling, Francis, Mackinac and Gardner, all four of which are closed at present. Of this group, the ore bodies have so far been opened only at the Smith.

In the country west of Ishpeming, the Cleveland Cliffs Co. late in the summer resumed operations at the new Chase mine at Dexter, after an idleness since the preceding fall. The company's Morris mine at North Lake was brought to the producing stage the latter part of the year, as was its twin, the Lloyd, in 1911. At Humboldt, the Breitung interests are employing 150 men at the Baron mine, the erection of a new headframe, the present winter having made possible an increased output. For the purpose of making available low grade soft ore easy to mine in connection with the higher grade hard product lying in parallel strike to it, M. A. Hanna & Co. have erected a concentrator at their American mine at Diorite. While the plant is still in an experimental stage, there is excellent reason for the belief that the various problems will be solved and the process will prove an entire success. To initiate the development of the adjoining Maas lands, which are under lease to the Hanna interests and in which large deposits of ore have been found by diamond drilling, drifts are being extended from the ninth and twelfth levels of the American. As was the case last winter, the mine is shipping ore by rail to the steel plant at the Canadian Soo.

Champion Hard Ore

To the west of the Champion mine, the Steel Corporation has been exploring the past year, in search of the westerly extension of the Champion hard ore measures. This extends to Lake Michigamme and, it is believed, dips beneath that body of water. Idle for more than a year, the Imperial mine at Michigamme is being restored to the active list and will be operated vigorously henceforth, at least until the close of 1919, when the lease held by the Cleveland-Cliffs Co. terminates. The Michigan Land & Iron Co. is the owner of the fee. The Imperial has a new crushing plant and its equipment in general has been much improved during the period of idleness. The mine employes 200 men. Nine miles southeast of Michigamme is an iron-bearing formation, the strike of which is northeast by southwest, on which the Jones & Laughlin Co. has done some drilling the past year and where the Steel Corporation is still conducting exploratory work, its operations extending to the Fence Lake country. Acreage of the Michigan Land & Iron Co. is being tested.

Until that time wrought only five days a week, the Cambria Steel Co.'s Republic mine was put on full time early in the year and has since been operated on a normal basis. At Ishpeming, a night shift was instituted at the Cleveland-Cliffs Co.'s Lake mine several weeks ago. The property had been operated only in the daytime for two years previously. The force of 250 men has been almost doubled in size. An underground electric haulage system is being installed in the company's Cliffs Shafts mine. There are nearly 25 miles of drifts in this property, some of which are more than a quarter of a mile in length. The Jones & Laughlin Co. is diamond-drilling near Iron Mountain Lake, one of the chain from which Ishpeming city procures its water supply.

Long Life for Menominee

As is true of the Marquette and Gogebic districts, the Menominee range has a long life before it. No less an authority than State Geologist Allen, of Michigan, has stated that iron ore will be coming from the Iron River country for the next 100 years at least. Recent discoveries in territory tributary to Crystal Falls, at the opposite side of Iron county, would indicate that notwithstanding shipments have been in progress for more than a quarter of a century the district is still in its infancy. There is hardly a doubt that large deposits of merchantable ore are awaiting discovery in the Florence-Commonwealth field, in Wisconsin, and it would be strange, indeed, were mines not opened eventually in the unexplored territory westerly of Florence and in the ten-mile stretch between Commonwealth and Iron Mountain, at the east. North and east of Iron Mountain, in spurs to the main ore measures and on the parent formation, itself, numbers of new and large producers are certain to be developed in the future. In fact, the field for exploration on the Menominee is more extensive than in either the Marquette or the Gogebic districts, large as are both of the latter. In none of these districts is it safe to say that ore does not exist in any tract on the iron-bearing formation until borings into the underlying country rock have proved the fact without a shadow of a doubt.

Areas that have been explored half a dozen or more times will be proved by some fortunate prospector, with better ideas or better luck than his predecessors, to contain ore in abundance. A case in point is found in the Mastodon field of the Crystal Falls country. The area had been explored at various times and by different concerns, with the passing of years, yet without success until the Nevada Land Co., controlled by the Longyear-Pillsbury-Bennett interests, began extensive diamond drill operations which are still under way. The Nevada people have found a great body of excellent ore in Section 13, 42-33, and, more recently, the Steel Corporation has located a big deposit in Section 12, adjoining on the north. There is little question that still other important discoveries will be made in the locality. With the exhaustion of the ores of higher grade—possibly long before that time—the Menominee will be prepared to contribute vast ton-

nages of low grade silicious ores, of which, like on the Marquette range, there are enormous deposits.

Broke All Records

With 14 mines on the shipping list, the Iron River district broke all former records last year by sending out nearly 1,800,000 tons of ore. This year, with more than half a dozen additional producers, its output is expected to closely approach the 3,000,000-ton mark. One new shipper will be Pickands, Mather & Co.'s Bengal property, in Section 36, 43-35, now being developed and equipped. During the year, Pickands, Mather & Co. restored the Baltic and Fogarty mines to the active list and transferred their Menominee range headquarters from Iron Mountain to the big Caspian property. The Wickwire Steel Co. shipped 70,000 tons of ore from its newly opened Wickwire mine and will have at least two additional producers this year—the Virgil and the Cortland. The Wickwire has been provided with a fine equipment, including a fireproof "dry" of hollow tile. Probably the best group of mine buildings in the district are those erected during the year at the Rogers-Brown Ore Co.'s Rogers property, which will begin shipments the coming season. In keeping with the fine shaft of concrete at the Rogers are a steel shaft house, crusher and ore bin and an engine house, a boiler house, a shop building, a warehouse and a dry, all of steel and brick. The Forbes mine, which also will be a shipper this year for the first time, is being provided with solid brick office and dry buildings, the latter with accommodations for 400 men. The Forbes is a property of the Jones & Laughlin Steel Co. A steel shaft house has been installed and ore-hoisting is in progress. Oglebay, Norton & Co.'s Berkshire mine got back on the producing list in 1912, after a two years' idleness, and sent 33,000 tons of ore to the Wickwire steel plant at Buffalo. The same Cleveland concern's Chatham property and its only other shipper in the Iron River district has been provided with a new dry accommodating 150 men.

Returns to Producing Ranks

Idle since the previous fall, the Mineral Mining Co.'s James mine, in the Iron River district, was put back into the producing ranks last year. A prospective shipper of this company, which concern is closely affiliated with the Pewabic interests of Milwaukee, is the Wauseca, adjoining the James, and where development work constitutes the program. Late in the season, Corrigan, McKinney & Co. resumed work at the Tully mine at Iron River. The Tully will ship this year. It has a big deposit. A second shaft went into commission at the Spring Valley Iron Co.'s Zimmerman property during the season, the shipments being increased to 190,000 tons. The McGreevy Steel Co., controlled by Minnesota and Michigan men, is developing the Buchholz, Sheridan and Purcell properties, the latter adjoining the Forbes, and it is expected all three will send out ore this year. A merger whereby the Iron River Ore Co. was absorbed by the McGreevy interests was effected some weeks ago. The Iron County Steel Co., a home concern, is exploring and developing the Lenox property, adjoining the Tully, and is doing some work on other lands. The Republic Iron & Steel Co. had five diamond drills in service in the Iron River country the past year, these at the Sherwood, Aronson and Minckler tracts. The two former have been explored to the company's satisfaction and are now held under lease and will be developed. Two drills are still operating at the Minckler, which adjoins the Wauseca. The Wisconsin Ore Co., a home corporation, is exploring the McFarland property, adjoining the James mine on the northeast. Ore has been found. Other concerns have explorations in progress.

Future of Crystal Falls

Asked as to the future of the Crystal Falls country, Captain Wm. J. Richards, general superintendent of the Menominee range properties of Corrigan, McKinney & Co., replied that three deposits discovered the last two years and still undeveloped alone contained a greater tonnage of ore than had been shipped from all the mines of the district since the first product was sent out 30 years ago. There is assurance of activity at Crystal Falls for decades to come, for in addition to the ore bodies in properties already producing the existence of deposits in various tracts has been determined by diamond drilling and there are extensive areas still to be explored. The district in 1912 sent out approximately 1,400,000 tons of ore. This was less than has been forwarded in seasons past. Not all of the Corrigan-McKinney mines were in commission, while neither the Mansfield nor the Michigan, both of the Steel Corporation, made shipments. With a few exceptions, notably in the case of the idle Great Western, stock piles were well cleaned up, however, and most of the active mines are preparing to get out an increased tonnage this year. The new Ravenna and probably the Carpenter, both of M. A. Hanna & Co., will be on the shipping list in 1913 and, it is expected, so will the Huron Mining Co.'s MacDonald and the Roberts Ore Co.'s Hilltop. The Hilltop was abandoned during 1912 by the Steel Corporation. Hanna & Co. suspended operations at the Hollister and removed the machinery to the Ravenna. The future of the Hollister is unknown, but at present the workings are filled with water.

New Bristol Shaft

An event of interest at Crystal Falls during the year was the completion of the new shaft at Oglebay, Norton & Co.'s Bristol mine. The shaft was opened both by sinking and raising. It is 1,000 feet deep, entirely through rock, and is 300 feet from the ore body. It is lined with steel and the dividers of the four compartments are of steel, also. Surmounting the shaft is a steel shafthouse. The shaft has its own buildings and machinery and is a mine in itself, the best equipped in the district. Since the first exploration of the Menominee range, four particularly large bodies of merchantable ore have been found—the Chapin mine, 30,000,000 tons, a Steel Corporation property; the Caspian, in excess of 10,000,000 tons, of Pickands, Mather & Co.; the Aragon, 10,000,000 tons or more, of the Steel Corporation, and the Mastodon find, of the Longyear interests, in Section 12, 42-33. While little information concerning this latter deposit has been made public, there is an idea in mining circles that the tonnage approximates 10,000,000. And apparently vying with it is the ore body recently found by the Steel Corporation in the Michigan Iron & Land Co.'s property in the adjoining Section 12. Exploration at both of these tracts continues.

Still other big deposits of recent discovery in the Crystal Falls district are those of M. A. Hanna & Co., in Section 19, 43-32, the Ravenna, and in Section 31, 43-32, the Carpenter, a mile and a half southwest. The ore in both instances, while a non-Bessemer, is of excellent quantity and readily marketable. The mines will, it is expected, be among the largest and most valuable on the range. Both are being developed. Another new shipper, and probably this year, will be Pickands, Mather & Co.'s Warner property, in Section 9, 44-33, adjoining the Michigan mine. Preparatory work is in progress. The adjoining Gibson property of the Rogers-Brown interests is idle. South of the Gibson, the Longyear interests have proved up a body of ore, probably a million tons, in the Amasa-Porter tract. No development work has been done. Southwest, the Florence Iron Co. has a promising tract in Section 36, 44-33, in which two diamond drills have been at work. The Florence people also are exploring in Section 14, 42-33, close to

the big Mastodon find of the Longyear interests.

From its Florence mine at Florence, Menominee range, the Ladenberg-Thalman interests shipped 100,000 tons of ore in 1912. The property recently increased operations and is now working on double shift. A mile and a half distant, at Commonwealth, the Florence company is opening the Ernst mine. Contracts have been made with the Peninsula Power Co., which has built a big hydro-electric plant at Twin Falls, Menominee river, and machinery at both the Florence and Ernst will be electrically operated. Power from the same source will be used at Oglebay, Norton & Co.'s Buckeye mine at Commonwealth. The Buckeye resumed operations the latter part of 1913, after an idleness of more than a year, and is now being wrought practically at full capacity.

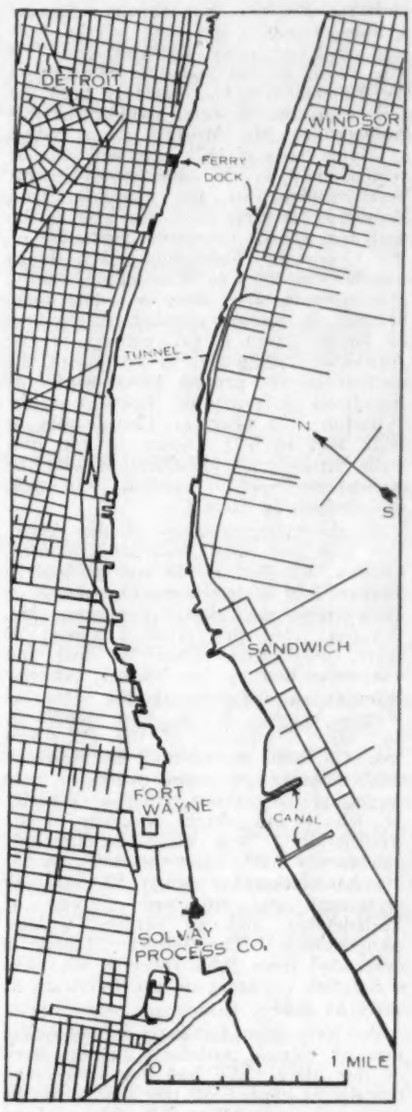
As for months past, the Chapin and Aragon mines of the Steel Corporation, at Iron Mountain and Norway, respectively, are being worked only five days a week, production being curtailed because of the increased output procured at the Hill properties on the Mesabi. The Chapin is employing about 600 men. The Hamilton shaft has been provided with a fine shafthouse of steel and is being concreted from top to bottom. The Chapin "B" shaft, idle for a long term of years, has been deepened 200 feet and the machinery placed in condition to permit of a resumption of mining at any time. In the Felch Mountain country, north of Iron Mountain, the Huron interests are continuing the development of the Groveland mine, in Section 31, 42-29. Pickands, Mather & Co.'s Calumet mine, in the Felch Mountain field, and Vivian mine, at Quinnesec, were idle during the year. The stock piles at both properties were shipped, however. The Zimmerman interests have taken an option on 80 acres in Section 2, 39-30, at Quinnesec, and will test the land with a diamond drill. East of Quinnesec, the Steel Corporation is operating the Aragon, the Cambria Steel Co. the Penn group, and the Lorretto Co. the Lorretto mine. The latter is the furthest east of any of the developed properties of the Menominee range.

Nelson A. Gladding, of E. C. Atkins & Co., Indianapolis, and president of the American Supply and Machinery Manufacturers' Association, has announced that that organization and the National Machinery and Supply Dealers' Association and the Southern Supply and Machinery Dealers' Association will hold a joint convention in Indianapolis, April 10, 11 and 12. There is to be an extensive exhibit in connection with the meeting.

CANADIAN PLANT

Will be Built at Sandwich—First Cost About $20,000,000.

The United States Steel Corporation has been for some years past picking up land on the Canadian side of the Detroit river about a mile below the town of Sandwich, until the Corporation now owns a tract having a water frontage of nearly



LOCALITY OF SANDWICH

Map of locality opposite Detroit where Steel Corporation will build its Canadian Steel works—The Scotten tract is situated about a mile south of the village of Sandwich.

2 miles and an area of over 1,500 acres. It has long been surmised that the Corporation intended to establish steel works on the tract, but no definite announcement of its purpose was ever made. Last week, however, Judge Elbert H. Gary, chairman of the board of directors, issued an official announcement on the subject as follows:

"We have decided to establish a manufacturing plant upon the site which we secured some years ago in Canada, just opposite Detroit. In the comparatively near future, we shall commence the construction of some blast furnaces and mills. We shall probably build a wire mill, rail mill, structural mill, bar mill and perhaps some other mills. I suppose the first cost will be in the neighborhood of $20,000,000. The site in question is located at Sandwich, Ont. Some five or six years ago, we purchased about 1,500 acres on the Detroit river, giving us a splendid site. We have approximately a mile and a half on the river front where the water is from 25 to 30 feet deep."

The tract which the Corporation has secured extends from MacKee road to Turkey Creek, which is right at the head of Fighting Island. Much of the land is of a marshy character. Part of the cost of the plant will be financed by an issue of bonds. While no direct announcement has been received of the Corporation's purpose, it is expected that primary construction work will begin in the spring.

The disposition of manufacturers has been to regard Canada as a part of the home market and not the export market, though of course they have had to pay the duty imposed upon the entry of steel products into Canada, which averages from $6 to $7 per ton. It is to escape this duty, which in itself works out at a good profit, that the Corporation decided to establish a manufacturing plant in Canada to care for its rapidly growing trade with the Dominion. The location selected is certainly a splendid one, as it possesses every possible facility by land and water and shipments can be made cheaply from it to every part of the Dominion. Deliveries of steel products can very conveniently be made by boat from the plant to the Canadian head of the lakes, giving access to a field which is growing very fast.

The liveliest interest is being manifested in the little town of Sandwich, which can already see itself growing into a second Gary. Detroit steel interests are not concerned over the proximity of their great rival, as the new plant will naturally not compete for business in the United States. It will, however, be a direct competitor with the Algoma Steel Corporation's plant located at Sault Ste. Marie, Ont., and with that of the Hamilton Iron & Steel Co., located at Hamilton, Ont.

SWANK'S REVIEW

Of Past Years of the American Iron and Steel Association.

Under the heading, "The End of an Era", James M. Swank publishes the following article in the *Bulletin* of the American Iron and Steel Association of Dec. 31, the last number of that periodical which will be issued:

The Preacher says: "One generation passeth away and another generation cometh," and the greatest of English poets since Shakespeare, says: The old order changeth, yielding place to new." So it comes to pass that the American Iron and Steel Association, which was organized in 1855, now ceases all its activities as the representative of the American iron trade, giving place to the American Iron and Steel Institute, of New York, which was incorporated by the state of New York on March 31, 1908, and which now agrees to continue after Dec. 31, 1912, the work heretofore done by the Association. It also comes to pass that my active connection with the American Iron and Steel Association also ends on Dec. 31.

We have entitled this personal article "The End of an Era", and surely it is an appropriate and truthful title. From 1855 to 1912 the American iron trade has grown from a feeble and unpromising beginning to gigantic proportions, exciting the world's wonder. It was in 1855 that Bessemer was granted the first patent on his great invention, but it was not until 1864 that this country made its first Bessemer steel, and not until 1868 that we made our first open-hearth steel. For many years we have made more Bessemer and open-hearth steel than any other country. In 1873, the year in which we entered the office of the American Iron and Steel Association, this country made only 2,560,963 tons of pig iron, and in 1910 we made 27,303,567 tons, and in 1912 we will make a still larger tonnage. The year 1912 does not end an era in the development of our iron and steel industries, but it does end the activity of the American Iron and Steel Association, which was organized in the infancy of our iron and steel industries and has greatly helped them.

We have always been profoundly impressed by the patient and intelligent industry displayed by Secretary J. P. Lesley, Charles E. Smith, Joseph Lesley, and their assistants in compiling the valuable information contained in the bulletins of the Association and in the stout volume, "The Iron Manufacturer's Guide", all of which appeared in the years 1855 to 1859. After the reorganization of the Association in 1864 other good work was done. In 1865 Robert H. Lamborn, secretary, published a list and description of "the rolling mills making railroad bars in the United States", with their production from 1849 to 1864, a valuable record. The first number of the *Bulletin* as a weekly publication appeared on Sept. 12, 1866, with Henry McAllister Jr., my immediate predecessor, as its editor. This issue of the *Bulletin* will be the last of its kind. We are advised that the publication which will take its place will be in magazine form and will make its first appearance in New York late in January.

During my long connection with the American Iron and Steel Association, I have been greatly favored in having as my official superiors gentlemen who knew the wants and temper of the iron trade and who were gracious and helpful in all their relations with this office. In these 40 years we have had only four presidents—Samuel J. Reeves, Daniel J. Morrell, B. F. Jones and Joseph Wharton. More capable and worthy men for the presidency could not have been found. Mr. Reeves was born at Bridgeton, New Jersey, in 1818, his father, David Reeves, and his uncle, Benjamin Reeves, having established the Cumberland Nail & Iron Works at that place about 1814. It was not until 1826 that the Reeves brothers became identified with the Phoenix Iron Works. Samuel J. Reeves was a graduate of the College of New Jersey at Princeton. His son, David Reeves, now the president of the Phoenix Iron Co., has long been the auditor of the financial accounts of our Association. Mr. Morrell was a native of Maine, born in 1821. He will long be remembered as the successful general superintendent of the Cambria Iron Works in its early days, and also as the chairman of the executive committee of the Centennial Exhibition. Mr. Jones was born in 1824 in Washington county, Pennsylvania, and when a young man, became the leading member of the firm of Jones, Lauth & Co., owners of the American Rolling Mill at Pittsburgh, the nucleus of the present great works of the Jones & Laughlin Steel Co. Mr. Wharton was born in Philadelphia in 1826, and is best known to the iron trade through his identification with the Bethlehem Iron Co., and its successor, the Bethlehem Steel Co.

At the reorganization of the American Iron and Steel Association in 1864, Charles Wheeler, of the firm of Morris, Tasker & Co., pipe manufacturers of Philadelphia, was elected treasurer. Mr. Wheeler filled this position almost 20 years, until 1883, when he died and was succeeded by his brother, Andrew Wheeler, a member of the firm of Morris, Wheeler & Co., iron merchants, and also a member of the Pottstown Iron Co., who served until his death in 1903, another 20 years, when he was succeeded by his son, Andrew Wheeler Jr., who is the present treasurer of the Association. Thus three members of one family have been the treasurer of the Association for nearly 50 years, all prominent and esteemed citizens of Philadelphia, and all serving without compensation. The Wheeler family is descended from John Wheeler, who was a Swedish emigrant on the Delaware as early as 1653.

We have been fortunate in our selection of clerical assistants in the work of our office. We had not been many months in charge of the affairs of the Association until we felt the need of an all-round assistant, and this help we found in the person of George W. Cope, of Johnstown. Mr. Cope gave us valuable assistance in systematizing the work of the office. Several years afterwards, Mr. Cope entered the service of the *Iron Age*, and for many years he has been at the head of its editorial department. He was followed as my principal assistant by William M. Sweet, of Philadelphia, who had received his clerical training in our office. He studied medicine while still a clerk in our office and is now one of the eminent oculists of the country, with his office in Philadelphia. Dr. Sweet's place as my principal assistant was taken by William M. Benney, a practical printer, who had for some time been a clerk in our office. Mr. Benney had charge of our statistical work until 1892. For several years he has been the assistant secretary of the National Association of Manufacturers. Prior to Mr. Benney's retirement, William G. Gray, of Philadelphia, had been employed in our office as a proofreader and letter writer, and we at once placed him in charge of our statistical work, which position he has ever since filled.

We are also under obligation to Miss Columbia A. Horne, of Johnstown, who has been our bookkeeper and chief clerk for the last 21 years. In this long period Miss Horne has been of invaluable service to the Association and to us personally. Her intelligence, industry, tact and loyalty to the Association are beyond all praise.

Begin Work on Steel Plant

Foundation work for the new Corrigan-McKinney steel plant, Cleveland, has been under way for about a week, the contract having been awarded the Hunkin-Conkin Construction Co., that city. Several hundred tons of steel bars will be involved, but it is said wooden piling will be employed. The American Bridge Co. has the contract for the steel superstructure, as previously noted in THE IRON TRADE REVIEW. The new plant will cover 40 acres between Clark avenue S. E. and Dille road S. E., on the east side of the Cuyahoga river and directly across from the company's blast furnaces. Connection of the old and new plants will be made with a bridge spanning the river. Beside the open-hearth works, provision has also been made for mills for rolling merchant bars, plates and rails. It is planned to have the new plant completed by 1914.

Allis-Chalmers Property to be Sold

The premises and property of the Allis-Chalmers Co., Milwaukee, Wis., will be sold at auction on Feb. 3, 1913, according to an order issued by Gerry W. Hazelton, special master commissioner, in pursuance to a decree of the United States District court at Milwaukee. The auction will be held at the Milwaukee county courthouse at 12 o'clock noon. No minimum price is fixed for which the properties shall be sold, the court having reserved the power and discretion to reject any bid which it considers inadequate or subject to any just objection.

Report is Denied.—The report that the Elyria Iron & Steel Co., Elyria, O., has decided to leave Elyria and locate in St. Louis, has been denied officially.

LATEST MACHINERY NEWS COLLECTED IN LEADING MANUFACTURING CENTERS

In New York, machinery dealers disclose trade conditions irregular as compared to the days immediately preceding and following the close of 1912. A few sellers experienced only a slight decrease in orders, while others felt the usual dullness of the season. The Norfolk & Western railroad closed for several machines included in the list submitted in December. This list, amounting to about $40,000, will probably be filled during the next week or so. Bids are about completed on the Boston & Maine specifications, and will be sent in early next week. The trade is expecting the early appearance of inquiries aggregating a large amount of perspective business from several railroad companies and industrial corporations. Included are the Baltimore & Ohio, the Pennsylvania, and the Bethlehem Steel Co. The list submitted by the New York Central & Hudson River railroad, late in December, is expected to be closed some time in January. Twelve machines, including lathes, drills, a grinder, plane and boring mill are wanted, approximating in value close to $25,000.

In Pittsburgh, machine tool builders and dealers entered the new year under most auspicious conditions. Naturally, the trade was affected by the usual year-end period of inactivity, but, almost without exception, it is advised that market conditions were not nearly so quiet as experienced in former years, and there is every indication of a good buying movement at the present time. Builders of drills, reamers, punches, hammers, etc., say there is good demand, and it is probable that several important contracts will be placed within the next week or ten days. The Pittsburgh Valve, Foundry & Construction Co. has placed an order for an 84 x 84 x 30-inch planer, and Hubbard & Co. have closed negotiations for a large bar shear, for installation in the Pittsburgh plant. Leading iron and steel companies are playing an active part in the buying of machine tools and other equipment.

In Chicago, machinery sellers report a satisfactory volume of business for the opening week of the year, although activity in the market is less apparent, due to the fact that the larger industrial lists have been closed. Some houses selling tools which operate largely upon iron products are awaiting further developments in the pig iron market with considerable interest, holding back additional shipments and keeping closely in touch with factory stocks. Prospects for the coming year appear to be unusually good and considerable new construction is under way.

Among the larger industrial lists which have been closed recently is the contract for the equipment for the new shops of the Minneapolis Threshing Machine Co., Minneapolis, Minn., which was taken by Joseph T. Ryerson & Son. The same builder has also contracted to furnish the equipment for the additions to the plant of the Emerson, Brantingham Co., involving a large list of machine tools. Most of the railroad purchases have been completed with the exception of a part of the requirements of the Elgin, Joliet & Eastern, which will probably not be closed until the first of the week. It is understood that the larger part of the tools required by the Chicago, Milwaukee & St. Paul were divided between Joseph T. Ryerson and Manning, Maxwell & Moore.

In Cleveland, the machinery market is quiet and machine tool dealers report few sales made during the past week. No important inquiries have appeared so far during the year, but prices have been asked on a number of single tools. The slackening in the volume of business transacted is ascribed largely to the customary dullness of the holiday and inventory season. A number of buyers are considering the purchase of tools. Prospects for the appearance of a number of inquiries for machine tools, during the next few weeks, are bright.

New Construction

The Gurney Heater Co., Framingham, Mass., is to erect a 700-foot brick addition to its plant.

The McConway & Torley Co., Pittsburgh, will build an extension to its plant at that city.

The Badger Foundry Co., Racine, Wis., is building an addition to its plant.

The Snell Foundry & Machine Co., Alexandria, Ont., is planning to build an addition to its plant.

The Duluth & Iron Range Railroad Co. will enlarge its docks at Two Harbors, Minn.

The Jesiek Boat Co., Grand Rapids, Mich., has purchased a site for the construction of a new plant.

Burr & Co., Champaign, Ill., is erecting a new structural steel shop and foundry, 120 x 268 feet, one story.

The Walter Machine Co., Detroit, has awarded the contract for the erection of an addition to its plant.

The Danville Malleable Iron Co., Danville, Ill., recently incorporated with a capital of $150,000, is planning to erect a plant.

The Franklin Mfg. Co., 80 East Jackson boulevard, Chicago, is planning to erect a two-story foundry 84 x 185 feet.

The Garden City Foundry Co., 616 West Monroe street, Chicago, will build a two-story foundry 125 x 100 feet.

The Russell & Erwin Mfg. Co., New Britain, Conn., is planning to build a seven-story building as an addition to its plant.

The Gurney Foundry Co., Toronto, Ont., is planning the addition of a core room to its present plant at a cost of $40,000.

The Atlanta Mfg. & Supply Co., Atlanta, Ga., is contemplating the erection of a two-story building at an approximate cost of $15,000.

The American Shoe Machinery & Tool Co., St. Louis, Mo., is preparing to erect a one-story factory building, at a cost of $7,000. The officers of

the company are: President, Abraham Block; vice president, Benjamin Medalie; secretary and treasurer, Louis A. Block.

The B. Scragge Iron & Metal Co., Winnipeg, Can., has purchased a site in Medicine Hat, Can., where it will erect a plant.

The new building of the Fort Wayne Rolling Mill Co., Ft. Wayne, Ind., is rapidly nearing completion, and will soon be ready for occupancy.

The Werner & Pfleiderer Co., Saginaw, Mich., contemplates the erection of a gray iron foundry having a capacity of from 100 to 200 tons per month.

The Newell Brass Foundry Co., Central Falls, R. I., is to replace its present plant of three buildings with a single building of modern construction and equipment.

H. C. Rhodes, Paducah, Ky., president of the Kentucky Southwestern Electric Railway, Light & Power Co., has announced that construction of the road will start early in the spring.

The Newark Wrapping Machine Co., Newark, N. J., is preparing to erect an addition to its plant, to cost $8,995. The new structure will be of brick and concrete. It will be used in part as a machine shop.

The C. Pardee Works, Perth Amboy, N. J., manufacturer of steel billets and bars, will rebuild at once its key-seating and shafting mill, which was recently destroyed by fire at a loss of $15,000.

The General Vehicle Co., 505 Fifth avenue, New York City, has plans for a large factory building which will be erected in the automobile manufacturing district of Long Island City.

The Gadsden Pipe & Fittings Co., Gadsden, Ala., manufacturer of iron soil pipe and fittings, whose plant was recently destroyed by fire at a loss of $15,000, will rebuild within a short time.

The Aluminum Co. of America will erect several new buildings at its plant at Knoxville, Tenn. The American Bridge Co. has been awarded the fabricating contract, involving about 8,000 tons of steel.

The International Harvester Co. is constructing a large addition to its warehouse, repair and assembling station, at Green Bay, Wis., which serves northern Wisconsin and the upper peninsula. P. T. Benton, of Green Bay, is architect.

The Birmingham Metal Products Co., Birmingham, Ala., manufacturer of metal culverts and pipe, is reported as expecting to establish a new plant, either at Greenville or Spartanburg, S. C. Estimated cost, $25,000.

Alfred Peter, architect, Washington Market, Newark, N. J., has completed plans for a brick factory addition to the plant of E. L. Koller, on Fifth street, that city. The building will be three stories high, 38 x 90 feet, and of mill construction.

The Universal Shear & Novelty Co., Newark, N. J., has filed plans for a brick factory building to be erected at 38-40 Littleton avenue. The building will be two stories, 33 x 90 feet, and is estimated to cost $8,000.

The Ludlow Mfg. Associates, Ludlow, Mass., are to erect a new building at their plant, 560 x 122 feet, five stories. The building was designed by C. T. Main, Boston, and will be erected by the J. W. Bishop Co., Worcester, Mass.

The Vulcan Iron Works, Ltd., Winnipeg, Manitoba, advises that it has made an addition to its foundry, 100 x 132, which it will use for making gray iron castings, increasing its output to about 40 tons per day. The company has also made an addition, 65 x 70, to its foundry.

The Lee & Porter Mfg. Co., Dowagiac, Mich., is preparing to erect a frame addition to its plant, 32 x 90 feet. The installation of about $8,000 worth of new machinery is also planned. The company expects to manufacture automobile axles on a large scale in addition to the work previously done.

The Canadian Northern Railway Co., which is laying out the new railroad town of Leaside, a few miles northeast of Toronto, Ont., states that a Montreal firm has secured a two-acre site for the erection of a large brass foundry, to be commenced early in the spring, which will employ between 300 and 400 men.

The Oswego Machine Works, Oswego, N. Y., recently acquired property adjoining its plant on First street, with the purpose of erecting additional manufacturing buildings. Plans have already been made for a two and three-story structure, and others are being prepared for a foundry building.

Farber & Murick, architects, 1028 Gates avenue, Brooklyn, N. Y., are preparing plans for a planing mill to be erected at 206 Norman avenue, that city, for the Greenpoint Sash & Door Mfg. Co. The building will be a two-story structure, 110 x 60 feet, and is estimated to cost $12,000.

The Canadian Pacific railway is building new shops at Ogden, near Calgary, Alberta, Can., which include a foundry and a pattern shop, the former being 203 x 80 feet and the latter 98 x 31 feet. The plant was designed by Westinghouse, Church, Kerr & Co., New York City.

The Canada Steel Goods Co., of Hamilton, Ont., has been reorganized, with an increase of its capitalization to $300,000 common stock. Plans have been prepared for an addition to the plant, which will cost $40,000. The new building will be two stories, of fireproof construction and will give the company 3,000 square feet additional floor space.

The factory of the Haughton Elevator & Machine Co., Toledo, is to be enlarged by the building of a one-story brick addition, 80 x 114 feet. The additional room will be used as a "car factory" in which platforms and frame work of the company's products will be made and assembled. New modern machinery will be installed.

Next spring an addition will be made to the Illinois Central shops in East St. Louis, Ill., according to advices from that city. The expansion is in expectation of an increase in business to follow the opening of the Panama Canal. Employment will be given to about 1,000 or 1,500 extra men. The new shop will make the plant second in size and number of employes to that of the company in Chicago.

Construction work will be started shortly on the manufacturing plant of the J. P. Devine Co., Buffalo, to be erected at Clinton street and the Erie railroad. The plant will consist of a machine shop and erecting house combined in one building, 90 x 200 feet, a boiler house and office building. Wood & Bradney, architects, Mutual Life Insurance building, will have charge of the work.

The Household Stove Mfg. Co., Taunton, Mass., according to dispatches, will rebuild on the site of its factory, seriously damaged by fire. A contract for a plant three times the size of the former has been awarded by Richard E. Warner and the two proposed buildings will be of brick. One will be one-story, 150 x 210, for the molding, mounting and assembly shops, and the other, three stories, 77 x 200 feet, will be storage.

The Globe Machine & Stamping Co., Cleveland, has recently completed a new plant, a two-story structure with a floor space of about 65,000 square feet, for the manufacture of steel tool boxes for automobiles. The building includes a kitchen and dining room for the accommodation of the company's officers and employes.

James W. Juengling is president; Albert H. Krause, vice president, and Albert F. Schroeder, secretary and treasurer.

The Crucible Steel Co. of America has completed plans for its new plant at Syracuse, N. Y., brief mention of which was given in **The Iron Trade Review** some time ago. There will be 14 buildings, most important of which are as follows: Hammer shop, 95 x 400 feet; rolling mill, 220 x 540 feet; annealing building, 90 x 400 feet; wire mill, 100 x 520 feet; treating plant, 50 x 160 feet; machine shop, 50 x 220 feet; and a melting plant 90 x 700 feet. An administration building, stables, and sheds also will be erected. The McClintic-Marshall Co., Pittsburgh, will fabricate the steel, about 3,000 tons.

The Willard Storage Battery Co., Cleveland, manufacturer of storage batteries for automobiles, electric lighting systems for passenger trains and supplies for railroad semaphore and signal houses, has announced that it will erect a five-story building of steel and concrete, 100 x 330 feet, on a tract recently purchased from the Atlas Bolt & Screw Co., at a cost of $31,000. Only recently the Willard Co. took over the plant and land formerly occupied by the Frost Wire Fence Co., at $35,000. Officers of the Willard company are: President, Jacob H. Schafer, of New York; vice president and general manager, Theodore A. Willard; secretary and treasurer, Harry J. Stiles.

Bridge News

The state highway commission, Albany, N. Y., will receive bids until Jan. 13 for the construction of a bridge over South Bay, near Whitehall, on Lake Champlain.

The common council of Manitowoc, Wis., has taken steps to change the size of the channel, approaches and superstructure of Eighth street bridge, which has been found not in conformity to the original permit granted by the war department many years ago. The matter came to a head when the Manitowoc Dry Dock Co., which has just completed a $1,000,000 drydock, investigated and made objection. Large lake steamers are unable to pass through the bridge, which is lacking 15 feet on either side, according to the original permit.

Extensive new shops with a complete equipment of electrically driven machine tools have just been constructed in connection with the organization of work for the great double track cantilever bridge being built by the Dominion government across the St. Lawrence river above Quebec. They have been put up at Lachine, Que., at an estimated cost of $1,000,000. It is expected that the expense, together with the purchase of materials, cost of labor, etc., will aggregate $3,000,000 more than the contractors will have received in payment at the time erection is commenced.

Machine Tools

The Ottawa Car Co., Ltd., is adding a modern machine shop to its present plant at Ottawa, Ont. The company has recently received some very large orders from western cities, including Calgary and Moosejaw. The plant is being run to its full capacity, a large number of all-steel cars being turned out.

The W. A. Laidlaw Wire Co. advises that they have leased a building in Peoria, Ill., and will ship from Kansas City such machinery as will be needed for the present.

The Brazil Sheet Metal Co., Brazil, Ind., engaged in general foundry business, will install additional equipment.

The Tri-State Drilling & Fishing Tool Co., Charlestown, W. Va., are building a new machine shop.

The Pittsburgh Valve Foundry & Construction Co., Pittsburgh, has ordered an 84 x 84 x 30-inch Detrick & Harvey planer.

Power Plant Equipment

The Winnipeg board of control asks for tenders up to Jan. 24 for the manufacture and installation of three 2,700-kilowatt stepdown transformers with oil and accessories complete, for the city light and power department.

The Sheffield Gas Engine Co., Kansas City, Mo., formerly the Sheffield Gas Power Co., advises that further than a change in its name there is no significance in its recent incorporation.

The Pressed Steel Car Co., McKees Rocks, Pa., has recently ordered a 100-horsepower electric type boiler from R. H. Murray, Pittsburgh, representative of the Titusville Iron Co., Titusville, Pa.

The Steam Equipment Mfg. Co., Pittsburgh, has received a contract for equipping the plant of the Pittsburgh Crucible Steel Co., at Midland, Pa., with "Semco Caskey" hydraulic operating valves.

The Canadian Car & Foundry Co., Amherst, N. S., are making extensive additions to their car building plant, which will require additional horsepower of 500. Motor drives are also being installed in the new addition to the company's malleable iron works.

The Harbison-Walker Refractories Co., Farmers' Bank building, Pittsburgh, has ordered a 75-kilowatt steam engine direct connected to generator from E. W. Bentley, Pittsburgh, representative of the Skinner Engine Co., Erie, Pa.

The Electrical Development Co., of Ontario, and the Toronto Power Co., Toronto, Can., will shortly commence work on the construction of a power transmission line, followed later by an electric railway, from Niagara Falls to Syracuse, N. Y., a distance of 162 miles.

John Hulst, chief engineer for the Carnegie Steel Co., is taking estimates on the installation of mechanical stokers to operate the power plant of the Lower Union mills, Pittsburgh. Installation calls for about 3,000 horsepower to operate four Sterling water tube boilers, four Babcock & Wilcox water tube boilers and one Erie City water tube boiler.

The Rateau Steam Regenerator Co. has received a contract from the Carnegie Steel Co. for steam regenerator equipment for the Homestead Steel Works. Regenerators will regulate the exhaust of the plate mill delivering steam intermittently at the rate of 260,000 pounds an hour and will supply a steady flow of exhaust steam to a mixed pressure turbine of 3,750 kilowatts.

The Pittsburgh Coal Co. has awarded the contract for the construction of a machine shop and power station at its No. 5 dock on Allouez Bay, Superior, Wis., to A. Dauplaise, of Superior. The dock is being remodeled and electric drive for hoists, spouts and other purposes is being installed, the whole entailing an expenditure of $150,000. The plans and specifications are by E. E. Johnson, architect, Superior. P. S. Elwell is general manager of the Pittsburgh Coal Co.

Water Works

The Ludlow, Ky., Water Co. is considering the extension of a pipe line to Bromley, Ky.

Winnipeg, Man., started operations a week ago on waterworks extensions which will include the construction of a steel pipe line 8½ miles long and will cost $1,000,000.

Heap & Partners, Ltd., Montreal, Que., are supplying Ottawa, Ont., with two Rees Roturbo centrifugal pumps in connection with the waterworks system. They have a capacity of 3,000,000 gallons each.

Port Arthur, Ont., is calling for

tenders for the supply and delivery of the following lap-welded steel pipe: 40,200 feet of 5/16-inch, 24-inch pipe; 2,700 feet each of 5/16-inch, and ¼-inch 24-inch pipe with flanged joints, and 6,000 feet of 3-16-inch, 12-inch pipe. Tenders are also invited for 30 24-inch gate valves; nine 12-inch gate valves, and two 24-inch check valves.

New Buyers

The United New Jersey Railroad & Canal Co., Trenton, N. J., will build a two-story structure for mechanical and machine work.

R. F. Greene & Co., Kingsville, Ont., will erect a building for a foundry and machine shop, for which new equipment will be needed.

The Davis Milk Machinery Co., North Chicago, Ill., is planning to double the capacity of its plant by installing additional machinery.

The Briggs-Chicago Mfg. Co., Chicago, recently incorporated for $60,000, is erecting a plant at Waukegan, Ill., to manufacture contractors' machinery and equipment.

The Furness Bros. Co., 2719 W. Lake street, Chicago, has awarded the contract for the construction of a two-story machine shop at an estimated cost of $7,000.

Thomas Moore, Paris, Ky., will need equipment for a large sawmill which is to be erected at Hazard, Ky., where he has recently purchased a large body of hardwood timber.

The Aiken Engineering Co., Winthrop Harbor, Ill., contemplates the erection of a foundry for the manufacture of gray iron and semi-steel castings.

The Klimax Mfg. Co., Chicago, incorporated by Charles S. Genzhorn, John L. Walker and Robert J. Scott, will manufacture machinery and specialties.

The White Star Iron Works, Chattanooga, Tenn., has been incorporated with a capital stock of $25,000 by H. A. Starr, C. A. and William White, L. C. Orr and E. Y. Chapin.

The C. C. Stoll Oil Co., Louisville, Ky., is to purchase electric pumps to be used in its oil handling plant at Lexington, Ky. C. C. Stoll is president of the company.

The Atlantic Wire & Iron Works, Chicago, has been incorporated with a capital stock of $1,400 by Benjamin H. Bematein, Louis Becker and Israel B. Rosenstein, and will manufacture wire, iron and steel.

The McClellan Brass Foundry Co. has opened a plant on Walnut street, Toledo, O. All kinds of brass and aluminum work will be turned out. Harry McClellan is manager of the new concern.

The Elyria Belting & Machinery Co., Elyria, O., advises with regard to its recent incorporation, that it has been organized for the purpose of buying and selling second-hand boilers, engines, machinery, belting, etc.

The Toledo Electric Welder Co., organized under the laws of Ohio, has been licensed to carry on business in Ontario with head office in Brantford, on a capital of not more than $40,000.

The Stock Process Steel Co., Detroit, has been organized with a capital of $300,000 to engage in the manufacture of steel castings for the automobile trade. The company has established a temporary office at 827 Majestic building.

The Putnam Iron & Metal Co., Inc., Putnam, Conn., has filed a certificate of organization, showing its officers to be: President, Aaron Gordon; secretary and treasurer, David H. Hatch; directors, the foregoing, with Etty Lavine.

The Maritime Motor Car Co., St. John, N. B., is erecting a plant at Coldbrook, N. B., for the manufacture of high-grade automobiles. The buildings, two in number and each 250 x 100 feet, will be equipped with electrically driven machinery.

The Standard Chemical Iron & Lumber Co. will shortly complete the erection of its new smelter at Kingston, Ont., for which it has been voted a bonus of $25,000. The government is building a dock for which the contract has been let.

A new rolling mill company to be known as the Canadian Rolling Mill Co., Ltd., has been organized in Montreal, Que., with a capital of $1,000,000. Some of the interests formerly connected with the Montreal Rolling Mills are understood to be connected with the new concern.

The Peterborough Machine & Lubricator Co., Ltd., Peterborough, Ont., recently incorporated at a capital of $600,000, will establish a plant for the manufacture of motors, engines, etc. Edgerton R. Wilson and Alexander Gillespie are among the provisional directors.

The Speedway Tire Co. has been organized in Louisville, with $250,000 capital stock, for the manufacture of automobile tires. H. L. Lewman is president and G. W. Greene general manager. The latter will purchase the power and special equipment needed.

The Johnson Electric Supply Co., Cincinnati, has been incorporated with a capital of $10,000, by William J. McCauley, A. Bart Horton, W. M. Beinhart and others. The new concern takes over the Johnson-Kennedy Electric Co. The business will be continued as in the past.

The American Automatic Damper Co., Wallingford, Conn., has had its charter approved by the secretary of state and will engage in the manufacture of automatic dampers, with an authorized capital of $10,000. The incorporators are Lucius Hendee, William B. Wilson and James Westervelt.

The business and equipment of the old Sioux City Foundry Co., Sioux City, Ia., put in the hands of a receiver several months ago, have been sold to the New Foundry & Mfg. Co. The latter concern was recently organized and incorporated by D. C. Shull, E. Root and C. M. Stilwell for the purpose of taking over the former company.

The Grenier-Warrington Motor Car Co., Ltd., Montreal, Que., has been incorporated at Ottawa with $50,000 capital to manufacture and deal in automobiles, motor cars, motor boats, etc. Dr. E. Ostigny, Theopile Viau, John T. Warrington and Aime Grenier, of Montreal, and Hector Paiment, of Outremont, Que., are the incorporators.

The Cumberland Motor Co. is to establish a factory at Pineville, Ky., for the manufacture of a patented spring motor to be used in the operation of sewing machines. H. J. Gibson and H. L. Pittman are officers of the company, which is capitalized at $50,000. Machine tools are the principal items to be purchased.

The Nashville, Tenn., Traction Co. has been incorporated with $500,000 capital stock and will later issue bonds to the amount of $4,000,000 for the construction of city and interurban railway lines. Applications for franchises have been filed with the city authorities. A power plant of large capacity will be erected if the arrangements of the company go through.

The Jones Pneumatic Tire Spring Co., Bridgeport, Conn., advises that it has been organized with a capital stock of $100,000, the stock being held by officers of the company, as follows: President, E. E. Brandeau; vice president, Jay D. Jones; secretary and treasurer, Lyman D. Jones. The company proposes for the coming year at least to have the various parts of its devices made for it.

The Duplex Molding Sander Co., Hornell, N. Y., has been incorporated and will engage in the manufacture of a duplex molding sander, recently

patented by W. F. Smith and J. C. Prims, of Hornell. The officers of the concern are: W. F. Smith, president; J. C. Prims, vice president; J. Bonenstab, treasurer. These officers, together with J. F. Colgrove and R. E. Frohmer constitute the board of directors.

The League of Canadian Automobilists, Ltd., Bridgeburg, Ont., has been incorporated with Dominion charter and a capital stock of $5,000,000 to carry on the business of manufacturers, buyers and sellers of automobiles, motor vehicles and supplies, machinery, implements, etc. The incorporators are James Steller Lovell, William Bain, Robert Gowans, Joseph Ellis and Samuel Goodman Crowell, all of Toronto, Ont.

With a capital stock of $100,000 the Anderson Rolled Gear Co., Cleveland, has been incorporated and will manufacture a gear-making machine, the invention of Harold N. Anderson, Cleveland, formerly with the Speedwell Motor Car Co., Dayton, O. It is expected to begin operations in about 30 days in the old plant of the Cleveland Drop Forge Co., Berea road, which has been leased, with an option to purchase. Members of the company are G. H. Sencabaugh, Harold N. Anderson, H. R. Calfee, Cleveland; F. Barker and D. H. Foster, Toledo.

The National Steel & Bronze Corporation, with offices in Boston and New York City, has been incorporated under the laws of Massachusetts with a capitalization of $5,000,000, consisting of 15,000 shares of preferred and 35,000 shares of common stock, with a par value of $100. The preferred stock is to be 7 per cent cumulative to be paid $110 and dividends in case of dissolution, and $120 and dividends for retirement. Metallic furniture and building materials will be manufactured by the company. The incorporators are E. J. Norris, G. D. Cabot, H. S. Hamilton Jr., W. Huke and B. K. Stephenson.

The Killen-Walsh Mfg. Co., capital stock $100,000, has been organized under the direction of the Commercial Club of Appleton, Wis.; incorporated under the laws of Wisconsin, and is preparing to commence the manufacture of gasoline tractors designed by William Strait, of New Mexico. The incorporators of the new concern are: William H. Killen, Appleton, Wis.; W. J. Walsh, Elmira, N. Y.; Walter Walsh, Eau Claire, Wis., and William Strait, New Mexico. The company has leased the plant of the Double Power Windmill Co. and made preparations for the construction of several new buildings. The present building has dimensions of 90 x 200 feet. A blacksmithing shop will be erected at once and the other buildings during the spring of 1913.

The C. L. Hils Co. Cincinnati, recently incorporated, advises that it has incorporated the business which has been conducted by C. L. Hils since 1884. Taken into the new company are his two sons, R. H. Hils, and Henry C. Hils, and three of the men at the head of the different departments. The company is engaged in handling waste material in general and scrap iron in particular, handling considerably more of this grade than all other articles in its line combined. It is the intention of the company to increase its business in every way possible. The officers are: President, C. L. Hils; secretary, R. H. Hils; manager scrap iron department, Henry C. Hils; manager wool and metal department, William Shannon; traffic manager, John Schardine; manager paper stock department, Thomas Evans.

New Incorporations

(In order to assist the post office in delivering letters to new concerns, it is suggested that the names of incorporators be written in the lower left hand part of every envelope addressed to such new companies.)

The following manufacturing companies have filed articles of incorporation:

Enterprise Foundry Co., Pittsburgh; $25,000; by T. C. Ward, W. L. Guckert and O. W. Mason, Pittsburgh.

Montress Metal Roofing Co., Camden, N. J.; $180,000; metal roofing; Clement N. Perrin, Geo. A. Derfer, Thomas C. Van Osten.

Miller & Starr Co., Brooklyn, N. Y.; brass, steel, iron, tin, etc.; $20,000; Wm. P. Miller, Henry B. Starr, Clara E. Miller, Freeport, L. I.

Sheen Perfect Drill Co., Sandoval, Ill.; capital, $10,000; Lease Ruddick, Samuel T. Skeen, Raymond W. Walters.

Standard Castings Co., Cleveland, $100,000; Julius F. Janes, S. C. Cutler, E. H. Janes, M. M. Feidner, N. N. Calfee.

The Niagara Falls Furnace Co., Niagara Falls, N. Y.; $50,000; Ambrose V. Davidson, Wm. T. Taylor, Ed. T. Williamson.

United States Lock & Hardware Co., Columbus, Pa.; $25,000; Galvin G. Sauer, James R. Haldeman and Cleon N. Bertheizel, Columbus.

Sheffield Gas Engine Co., Kansas City, Mo.; capital, $150,000; Fred D. Whiting, Freeman Field, Harris Robinson.

Lindsey Metal Works, East Orange, N. J.; $50,000; metal novelties; Harry H. Picking, Charles O. Geyer, Frank E. Ruggles.

Dilts Machine Works, Inc., Fulton, N. Y., $100,000; Bert W. Bennett, Frank B. Dilts, Alanson S. Page, 157 West Third street, Oswego, N. Y.

Continental Foundry & Machine Co., East Gary, Ind.; capital stock $40,000 directors, Charles Pekat, George Earl, William Pekat, William Earl.

Barrett Machine Co., Pittsburgh; $10,000; by Arthur Barrett, Josiah Barrett and Frank Josiah Barrett, Pittsburgh.

Perkasie Mfg. Co., Perkasie, Pa.; iron and steel boxes; $50,000; by Thomas Stonson, August C. Schoen and J. Disbrow Baker, Perkasie.

Borden Stove Co., Philadelphia; $50,000; by Frederick Borden, Josiah B. Borden, J. B. Smythe and Albert E. Koch, Philadelphia.

Staybestos Mfg. Co., Philadelphia; friction materials; $10,000; by G. H. Derbyshire Jr., John Burton and F. G. Minor, Philadelphia.

F. & E. Trump, Inc., Williamsport, Pa.; foundry; capital; $40,000; by William C. King, Spencer W. Hill, Frederick H. Gaige and E. D. Trump, Williamsport.

The Isaac Joseph Iron Co., Cincinnati; iron and steel rails, railroad equipment and supplies; $50,000; Isaac Joseph, Wm. Rentrup, Frank Fromhold, Edw. Uhl, Emil Jacobson.

Railways Safety Device Co., Marion, Ind.; capital stock, $15,000; by Edward Leaply, Martin C. Sloderbeck, Wm. Leaply, Bernard B. Shively, Wm. H. Carroll.

The Canadian Metal Shelter Co., to manufacture portable metal buildings and shelters of every description, ornamental and structural sheet metal; capital, $200,000.

The Hyrup Co., Boston, to manufacture machinery, tools, etc.; capital, $30,000; by Haines K. Hyrup, president; Grace A. Devers, Roxbury, Mass., treasurer, and B. B. Libby.

Dominion Hose Coupler Corporation, Buffalo; general iron and metal manufacturing; $10,000; George J. Waiter, Leonard Gloss, Frederick Ditmar, 405 Jefferson street, Buffalo.

Powers Accounting Machine Co., Inc.; Manhattan, N. Y.; $10,000; Benjamin B. Avery, Charles A. Tausig, Horace W. Palmer, 220 Broadway, N. Y.

The Special Equipment Co., Cincinnati; drying, heating and ventilating apparatus; $15,000; B. S. Hughes, Charles Leibich, F. H. Lostetter, Charles Fisher, Frank Leibich.

The Vulcan Mfg. Co., Painesville, O.; automobiles, wagons, carriages, etc.; $300,000; E. B. Heartwell, F. H.

Murray, J. C. Ward, Wm. Truby, Harry E. Hammer.

American Missouri Lead Co., Jersey City, to manufacture lead, iron, steel, zinc, etc.; capital, $750,000; B. S. Mantz, L. H. Gunther, C. H. Jarvis, all 15 Exchange Place, Jersey City.

Keystone Boiler Works, Philadelphia; $5,000; William Radcliff, Manyunk; Walter A. Rich, Philadelphia, and Thomas Hovenden, Plymouth Meeting, Pa.

National Mfg. & Steel Supply Co., Newark, N. J.; to manufacture iron, steel, etc.; capital $100,000; S. F. Glenn, R. I. McKinstry, John Davidson, all 23 River Ct., N. J.

Metals Working Co., Camden, N. J.; to manufacture iron, steel, copper, metals, etc.; capital, $200,000; V. A. Murray, M. L. Brennan, L. A. Myers, all of 419 Market street, Camden, N. J.

The Acme Welding Co., Pittsburgh; to operate by the Oxyacetylene process; $5,000; by F. R. S. Kaplan, T. C. Donahue, F. J. Tyrell, B. H. Peters, John R. Frankenburg and Harry Murphy, Pittsburgh.

Lindsay Metal Novelty Works, E. Orange, N. J.; to manufacture metal novelties and specialties in brass, German silver, etc.; capital, $50,000; H. H. Picking, C. O. Gayer, F. E. Ruggles, all of 525 Main street, E. Orange, N. J.

Gahagan-Parker Co., Inc., Brooklyn, N. Y.; engineering, contracting and construction; capital, $15,000; Walter H. Gahagan, 231 Lincoln place, Brooklyn; Andrew M. C. Parker, Princeton, N. J.; Alfred Liebmann, 57 West Fifty-eighth, New York City.

Canadian Barker Co., Ltd., Sault Ste. Marie, Ont., capital $40,000; to manufacture pulp wood markers, and wood-working, paper-making and other machinery; provisional directors, Samuel H. Cady, Edmund H. Manger and Henry B. Cleereman.

United Metal Hose Co., Inc., Manhattan; manufacture and deal in metal hose, supplies, etc.; capital, $50,000; Max A. Liebers, 510 W. Twenty-fourth street; Maurice F. Feigenbaum, 186 Fifth avenue; Henry E. Hafer, 10 West Twenty-third street, New York City.

J. C. Tucker Co., Narragansett, R. I., to deal in general merchandise and tangible property, and to navigate, charter and construct vessels, wharves and docks; capital stock, $200,000; incorporators, John G. Hazard, Syracuse, N. Y.; B. E. Helme and A. W. Flinn, of South Kingston, R. I.

The Partridge-Metallurgical Co., Knoxville, Tenn., to manufacture hot blast and smelting furnaces; capital, $1,000,000; R. P. Oppenheimer, John H. Kincaid, Mitchel Long, all of Knoxville, Tenn. Also North Carolina Partridge Smelting Co., to smelt, reduce, refine and treat ores and metals of all kinds; capital, $300,000; incorporators same as Partridge-Metallurgical Co.

General Industrial

It is reported that a new foundry, to start the latter part of February, will be built in Trenton, Mich.

The Stover Gas Machine Co., of Illinois, will erect a branch plant in Winnipeg, Man.

The North Chicago Machine Co., Chicago, is increasing its capital stock from $25,000 to $100,000.

The Nypano Dock Co., Cleveland, has decreased its capital stock from $60,000 to $6,000.

The Ideal Electric & Mfg. Co., Mansfield, O., is increasing its capital stock from $50,000 to $150,000.

The Warner Elevator Mfg. Co., Cincinnati, has increased its capital stock from $200,000 to $250,000.

The Heald Machine Co., Worcester, Mass., is installing a 125 horsepower boiler in its plant in Greendale, Mass.

The Velie Motor Vehicle Co., Moline, Ill., has increased its capital stock from $600,000 to $800,000.

The Bacon & Donnovan Engine Co., Springfield, Mass., has taken over new and much larger quarters at 27 Lyman street.

The Cincinnati Steel Castings Co., Cincinnati, has amended its articles of incorporation reducing its capital stock from $100,000 to $50,000.

The Leader Engine Co., Grand Rapids, Mich., has increased its capital stock from $30,000 to $60,000, and will materially enlarge its facilities.

The Pittsburgh, Fort Wayne & Chicago Railroad Co. is remodeling and enlarging its machine shops at Fort Wayne, Ind.

The Middletown Car Co., which has offices in Pittsburgh and a plant at Middletown, Pa., has given notice of increase of its stock from $400,000 to $1,500,000.

An increase is noted in the capital stock of the International Harvester Co. of Russia, from $8,000,000 to $40,000,000. The company is a Maine corporation.

The Standard Pump & Engine Co., Cleveland, has increased its capital stock from $25,000 to $100,000, and will open a display and retail store at 1406 West Third street.

The Red Star Sanitary Vending Machine Co., Rock Island, Ill., has filed articles at Des Moines, Ia., as a foreign corporation and expects to transact business in Davenport, Ia., and utilize $15,000 of capital in that state.

The Charleston Foundry & Machine Co., Charleston, W. Va., will equip a plant for the manufacture of mine pumps and other machinery used in the coal mining industry.

The Dayton Motor Truck Co., Dayton, O., is considering establishing a factory in Chattanooga, Tenn. A. E. Ausman is the representative of the concern.

The Alton Steel Co., recently organized, which is building a hoop and band plant at Alton, Ill., has closed negotiations with the Mississippi River Power Co., Keokuk, Ia., for electric power.

The Shelby Iron Co., Shelby, Ala., has leased the ovens of the Silver Creek Furnace Co., Rome, Ga., and will operate them in the manufacture of charcoal. The furnace has been idle for some time.

Proposals are being asked by the Dominion government for improvements to the river at Pictou, N. S., which will greatly add to the shipping facilities of the Nova Scotia Steel Co. and other industries.

Philip Jacobson and Harry Schultz, doing business in New Haven, Ct., as the New York Electric Construction Co., have filed a bankruptcy petition in the United States district court, alleging liabilities of $2,826.92, and assets of $2,681.

Attorney Frank G. Crane has been appointed receiver of the Toledo Metal Spinning Co., Toledo, O., upon application of Robert H. Feldtman, alleging the company is indebted to him for $163.14. Liabilities are placed at $3,500 and assets at $800.

The Nova Scotia Carriage & Motor Car Co. has about completed a new four-story factory at Amherst, N. S. The main building is 300 x 100 feet. The office and power house are situated in separate buildings.

The National Iron & Steel Co., Houston, Tex., has recently closed the following contracts: 5,000 kegs of spikes, 2,000 kegs of bolts and other track specifications for the Southern Engineering & Construction Co., Dallas, Tex.; spike and bolt requirements for 90 miles of tracks for the San Antonio, Uvalde & Gulf Railway Co., and rail and track fastenings requirements for 20 miles for the Orange & Northeastern Railway Co.

The Two Rivers Plating Co., of Two Rivers, Wis., has just taken occupancy of its new factory building, a three-story brick structure, 40 x 80 feet, employing 35 hands. The company does an extensive business with several big concerns and will

engage in the manufacture of metal novelties.

Directors of the Mallory-Wheeler Co., New Haven, Conn., lock manufacturer, have voted to discontinue business. Action on the proposal will take place at a meeting of stockholders Jan. 27. The company was established in 1834.

The Warner Instrument Co., Beloit, Wis., has been sold to the Stewart & Clark Co., Chicago, for approximately $2,000,000. The Warner brothers, A. P. and Charles, started in business in Beloit about 10 years ago, manufacturing Warner speedometers in a small way.

The Simmons Mfg. Co., Chicago, manufacturer of brass beds, is preparing to establish a branch factory in Pittsburgh. A leasehold has been taken on two floors of a building with a floor area of 20,000 square feet and ample switching facilities from two railroads.

The plant of the Aluminum Castings, Ltd., at Bayswater, near Ottawa, Ont., is approaching completion and will be in operation shortly for the manufacture of aluminum, brass and bronze castings. The company has sufficient business in sight to warrant the engaging of a force of approximately 100 men.

The West Penn Traction Co., Pittsburgh, announce the merger of the Washington Electric Light & Power Co., the Canonsburg Electric Light, Heat & Power Co., Citizens Electric Light, Heat & Power Co., of McDonald, Pa., and the Waynesburg Electric Light Co., Waynesburg, Pa., as part of the West Penn system.

The Walker Bros. Co., Syracuse, N. Y., manufacturer of tools and special machinery, has increased its capital from $10,000 to $100,000. Officers of the company state the increased capitalization is for the purpose of starting a general line of manufacturing and installing new machinery. No new building will be erected at present.

The board of directors of the Mallory-Wheeler Co., New Haven, Conn., lock manufacturer, which has been operating in New Haven for 78 years, has recommended the discontinuing of the business of the company. A meeting of the stockholders of the company has been called for Jan. 27, when the resolution of the directors will be passed upon.

A Snow direct-connected gas-driven air compressor is being installed in the Rankin, Pa., plant of the McClintic-Marshall Construction Co., Pittsburgh. Installation consists of a Snow horizontal gas engine direct connected to a tandem compound Laidlaw-Dunn-Gordon compressor with a capacity of 2,000 cubic feet of air per minute at 100 pounds pressure.

The Blaw Steel Construction Co., Pittsburgh, has issued a notice for the annual meeting to be held in Camden, N. J., at which stockholders will vote on a bond issue. The company is now building a plant in the Allegheny valley for general fabricating and construction work. The company expects to make further developments, it is understood.

The federal court in Philadelphia has appointed Samuel P. Wetherill receiver for the Philadelphia & Gulf Steamship Co., which operates a line of freight steamers between Philadelphia and New Orleans. The company was organized in 1908 with a capital of $1,000,000. The petition for the receiver states that the company operated the steamers at a loss and that it was insolvent.

The Marine Construction Co. has sold its plant at Mariner's Harbor, Staten Island, to the Bradley Improvement Co. The property occupies a plot 355 x 1,047, and embraces two marine railways, shops, warehouses, complete ship yard outfit, a pier 800 feet long, three stores, etc. This is one of the oldest and largest ship yards on Staten Island, having been established by William Lissenden nearly 50 years ago, and has been in continuous operation ever since. The new owner contemplates extensive improvements to the property.

The Ohio-Sterling Co., Dayton, O., founder and machinist, has been placed in the hands of a receiver by Judge Sprigg, on the application of Theodore C. Dye, who is represented as being involved as surety on a note. The petition sets up that the company is indebted in the sum of $47,000, and while it is confidently expected that the company may be solvent, danger of the wasting of assets is expressed, should the firm continue as at present. Stockholders consented to the appointment of Mr. Dye as receiver. Theodore Dye is president and treasurer of the concern; Philip H. Worman, vice president; J. A. Gauthier, general manager; J. A. Kappeler, secretary.

The Hamilton Malleable Iron Co., Ltd., Hamilton, Ont., recently organized with a capital of $600,000, has not as yet definitely decided on a factory site, having at present three locations in Hamilton under option. The names of the permanent officials with one exception have not been made public. It is announced that J. E. Hammond, formerly with the Pratt & Letchworth Co., Brantford, Ont., will be managing director. Plans for the buildings are in course of preparation by Prack & Perrine, Hamilton, who will have charge of the construction of the plant and installation of equipment. The plant will cost in the neighborhood of $250,000 and employ about 500 men. The output will consist principally of castings for railroads, agricultural machinery and miscellaneous custom work. The factory is being designed in units, which will permit of its being enlarged as required. The main foundry will be 600 x 200 feet. This will be divided in half, with high speed electric traveling cranes in each. In this building will also be located four melting furnaces with a capacity of 15 tons per heat, annealing furnaces sufficient to handle the output and the latest cleaning and finishing equipment. In addition to the main building there will be the office and buildings for pattern storage, pattern shop, machine shop, carpenter shop and store house. Alongside the main buildings will be a crane runway, with which all the raw material will be unloaded and stored. All the buildings will be of modern construction and fireproof, the window frames being of metal. The latest labor-saving devices will be adopted, including overhead cranes to serve the entire foundry and yard, waste heat boilers, molding machines operated by compressed air, finishing equipment of the latest type of sandblast installation and exhaust tumbling barrels. All loading and unloading will be done by electrical power. It is expected to have the plant in operation by July 1.

Miscellaneous

The Commercial club, Bryan, Tex., is negotiating for the establishment of an iron and brass foundry.

Hubbard & Co., Pittsburgh, have recently purchased the New Doty bar shear from the Doty Machine & Tool Co., Janesville, Wis.

The Reo Motor Car Co., Lansing, Mich., advises that it is not in the market for equipment, as its new assembling plant has been completed and equipped.

The Crucible Steel Co. of America has closed negotiations for a 10-ton magnet handling crane to be installed in the La Belle works of the company, North Side, Pittsburgh.

The stove manufacturers of Evansville, Ind., have announced an increase in the wages of their molders amounting to about 5 per cent, effective Jan. 1.

The Weirton Steel Co., Weirton, W. Va., has closed negotiations for a 30-ton traveling crane, having

placed the order with the Northern Engineering Co., Detroit, Mich.

President A. J. Redway, of the Concrete Steel Co., Cincinnati, is quoted as saying that the reduction of the company's capital stock from $100,000 to $5,000 means a curtailment of operations for the time being.

B. H. Kroger, Cincinnati, is reported to have purchased land at Williamsburg, Ky., for the purpose of establishing a hotel which will be equipped with an electric light plant and ice factory.

Samuel Trethewey & Co., Pittsburgh, manufacturers of forging hammers, shears, knives and tool steel specialties, have placed a new steam boiler in their plant to test steam forging and tilting hammers.

The Green Bay Gas & Electric Co., of Green Bay, Wis., has been granted franchises for the construction of four miles of gas mains from Green Bay to Depere, Wis. Work must be completed by July 1, 1913.

Calgary, Alta., has recently accepted tenders from the Ottawa Car Co. to the amount of $132,912, and the Canadian Westinghouse Co. to the amount of $63,264, for new cars for its street railway system.

The Union Ice Co., Pittsburgh, has closed a contract with the Kerr Turbine Co., 2137 Oliver building, that city, for a 1,500,000 gallons per day, turbine-driven, centrifugal pumping unit for the water supply at the North Side plant of the ice company.

The Chattanooga, Tenn., Manufacturers' Association, of which a number of boiler, sawmill and other machinery manufacturers are members, has dedicated a new building, containing a hall where permanent exhibits are to be placed.

The Berry Foundry & Machine Co., St. Joseph, Mo., has erected a cupola with a capacity of 18 tons per hour. It is 90 inches across the steel shell and the fire brick lining makes the interior diameter 72 inches. A 75-horsepower motor supplies power for the fan.

The government is asking bids on the following cranes for installation in the new naval gun factory, United States navy yard, Washington, D. C.: One 50-ton, four-motor, electric, overhead traveling crane with a 10-ton auxiliary hoist; two 25-ton, four-motor, electric, overhead traveling cranes with a 10-ton auxiliary hoist; one 15-ton, four-motor, electric, overhead traveling crane with a 5-ton auxiliary hoist for outside service, and three 5-ton, three-motor, electric, overhead traveling cranes. Bids will be closed this week.

Trade Notes

Landers, Frary & Clark, New Britain, Conn., have sold the hammer business of the Humason & Berkley Co. to the Stanley Rule & Level Co.

The Bucyrus Co., South Milwaukee, Wis., manufacturer of excavating machinery, has recently changed its New York City address to 30 Church street. C. S. Reed, eastern sales manager, is in charge of this office.

A. F. Plock, engineer, Park building, Pittsburgh, is making installations of the Hinkle safety device on the hoists at the Atlantic and Hannah blast furnaces of the Republic Iron & Steel Co., and on vertical and skip hoists of the Northwestern Iron Co.

The Beatrice Steel Tank Mfg. Co., Beatrice, Neb., has just completed and is now occupying its new building. The new structure is a one-story brick, with a floor space of 6,000 square feet, and has been designed especially to meet with the requirements of this particular line of business.

The Epping-Carpenter Co., Pittsburgh, manufacturer of pumping machinery and condensers, announces that it has opened a branch office at Chicago. The office will be in charge of R. E. Burke, formerly of the International Steam Pump Co., and will be located at 728 Monadnock building.

The Trenton Iron Co., Trenton, N. J., all of whose stock the American Steel & Wire Co. has owned for several years, has transferred its title to the latter company, and will be conducted henceforth in the name of the American Steel & Wire Co. The conduct of the business and the management of the plant will be unchanged.

The Anderson Engine Co., which recently moved its main office from Shelbyville, Ill., to Chicago, advises that upon completion of its new plant at Sixty-first place and Archer avenue, Chicago, it will also move its factory from Shelbyville. This will be done in the near future. The company says its principal reason for moving to Chicago is to get in better touch with the trade and to secure and hold skilled mechanics.

The I. B. Rowell Co., Menominee Falls, Wis., manufacturing plows and other farm implements at Menominee Falls, since 1860, on Christmas day sounded taps on its steam whistle, marking the abandonment of the works in favor of its new and modern shops at Waukesha, Wis. The Menominee Falls shops, all of frame construction, will be razed after the equipment is removed to Waukesha. Power was turned on in the new concrete shops at Waukesha on Jan. 2.

The German American Coke & Gas Co. and the United Coke & Gas Co., 17 Battery place, New York City, announce that they will move to a new suite of offices at 6 Church street on Jan. 1. Their construction branch, the American Coke & Gas Construction Co., Camden, N. J., will also be located at 6 Church street after Jan. 1. Edwin A. Moore has severed his connection as president of the American Coke & Gas Construction Co. and the new officers of the three companies are: President, Dr. F. Schiewind; vice president and general manager, Louis Wilputte; secretary-treasurer, Robert C. Metcalfe.

Fires

Fire at the plant of the Standard Iron Works, San Diego, Cal., recently, did damage estimated at $10,000.

Damage estimated at $500 was done to the plant, patterns and molds of the Hall Locke Co., Boston, by a fire in the brass foundry, recently.

Damage of over $100,000 was done last week by fire to the plant of the Manitoba Rolling Mills, manufacturer of bar iron at St. Boniface, Que., by a fire which started in the boiler room.

Fire, which broke out in the storage department of the Akron, O., works of the Wellman-Seaver-Morgan Co., last week, seriously damaged the foundry and caused the loss of a numbers of patterns.

Fire at the plant of the Minot Foundry Co., Minot, N. D., did damage estimated at $5,000, recently.

The plant of the Standard Iron Works, San Diego, Cal., has been damaged seriously by fire, the loss being estimated at $15,000.

The North End Foundry Co.'s plant, just beyond the city limits of Milwaukee, Wis., was badly damaged by fire last week. The loss is estimated at $25,000.

An eight-story building, occupied as a city warehouse by the Westinghouse Electric & Mfg. Co., Pittsburgh, was damaged by fire recently. The loss will probably exceed $35,000.

Fire at the plant of the Mead-Morrison Mfg. Co., Cambridge, Mass., damaged the machine shop and offices, recently. The loss is estimated at about $35,000.

The home office of Matthew Addy & Co., in the Carlisle building, Cincinnati, O., was destroyed by fire last week. The loss on office equipment amounts to $5,000. A number of volumes in the famous library of the works on iron and steel were burned.